Building Randomness and Unpredictability into Aviation Security Countermeasure Development and Implementation

PROJECT SUMMARY

APEC Transportation Working Group

February 2023

Asia-Pacific Economic Cooperation

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APEC Project: TPT 02 2020A

APEC#223-TR-01.1

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Glossary

ACI	Airports Council International
ACS	APEC Collaboration System
ADASP	Aviation Direct Access Screening Program
APEC	Asia Pacific Economic Cooperation
API	Advanced Passenger Information
ASEAN	Association of South East Asian Nations
ASP	Airport Security Plan
ATLAS	Advanced Threat Local Allocation Strategy
ATS	Atlantis International Airport (Fictional)
AVSEC	Aviation Security
CAA	Civil Aviation Authority
CCTV	Closed Circuit Television
CISA	U.S. Cybersecurity and Infrastructure Security Agency
COMSET	Compliance Security Enhancement Through Testing
COVID-19	Coronavirus disease
CTWG	APEC Counter-Terrorism Working Group
EDD	Explosives Detection Dog
ETD	Explosives Trace Detection
FAA	U.S. Department of Homeland Security
ICAO	International Civil Aviation Organization
ID	Identification
IED	Improvised Explosive Device
ITMA	Insider Threat Mitigation Activity
K9	Canine
MS	Microsoft
NCASP	National Civil Aviation Security Program
PD	Program Director
PDAE	Project Design Amendment and Extension
PHL	Philadelphia International Airport
PMU	APEC Project Management Unit

PNR	Passenger Name Record
PO	Project Overseer
Q&A	Question and Answer
QC	Quality Control
SARP	Standard and Recommended Practice
SeMS	Security Management Systems
SOP	Standard Operating Procedure
SRA	Security Restricted Area
TPTWG	APEC Transportation Working Group
TSA	U.S. Transportation Security Administration
TSI	Transportation Security Inspectors
TSO	Transportation Security Officer
TSS	Transportation Security Specialist
TSSE	Transportation Security Specialists – Explosives
TWG	APEC Tourism Working Group
UN	United Nations
WTMD	Walk Through Metal Detector
YOSC	Year of Security Culture

Executive Summary

Introduction and Approach

At the 2017 Asia Pacific Economic Cooperation (APEC) Transportation Ministerial Meeting, APEC reaffirmed its commitment to enhancing transportation security by:

- Improving Member Economies' capacity to mitigate vulnerabilities and counter terrorist threats;

- Engaging with other stakeholders within APEC (i.e., Counter-Terrorism Working Group (CTWG), Tourism Working Group (TWG)) and international organizations (i.e., International Civil Aviation Organization (ICAO));

- Encouraging participation in ICAO priorities, such as the development of Security Culture and human capability programs; and

- Minimizing security risks to transportation by encouraging economies to develop strong and informed security policies and to boost participation in security initiatives.

In light of APEC's commitments and in-line with priorities of international aviation organizations, the United States proposed and received APEC approval for Project TPT 02 2020A – *Building Randomness and Unpredictability into Aviation Security Countermeasure Development and Implementation*. The project was designed to enhance APEC Member Economies' risk mitigation capabilities by examining how to best leverage their existing resources to target specific threats and identify vulnerabilities, and to determine when, where, and how to allocate future resources. The project enabled Member Economies to develop and institute more sustainable aviation security (AVSEC) measures that will not only provide greater facilitation of passengers and goods in air transport, but also allow for sustained high levels of security across the operating system. Participants learned how to better leverage existing resources to mitigate the insider threat, thereby affording all Member Economies, regardless of their economic means, equal opportunity to develop and implement countermeasures considering their current resources, without major expenditure. Thus, creating a more secure, efficient, and sustainable transportation environment.

The objectives of the Project were four-fold:

1) Ensure participants understand the international standards and recommended practices (SARPs) for the application of random and unpredictable techniques in their AVSEC regime, with a focus on airport-level operations;

2) Increase participants' knowledge of the insider threat within the aviation domain, how to address security issues using risk-based approaches, and better leverage existing resources to mitigate that threat;

3) Build support for participants to implement randomness and unpredictability within their AVSEC operations through risk analysis principles and risk management to mitigate identified vulnerabilities; and

4) Foster evidence-based risk-informed decision making to support a more robust Security Culture.

This Project Summary and the Best Practices Guidelines, included at APEC Publication APEC#223-TR-01.1, reflect the achievement of these objectives.

1   Introduction

The United States, as Project Organizer through the U.S. Transportation Security Administration (TSA), and on behalf of the project co-sponsors Canada, New Zealand, Singapore, and Chinese Taipei is pleased to present this Project Summary as a final report to the APEC Secretariat, in line with the 2020 Work Plan of the APEC Transportation Working Group (TPTWG). It is hoped that this Project Summary will assist Member Economies in their efforts to build randomness and unpredictability into AVSEC countermeasures by utilizing the best practices outlined herein, and in APEC Publication APEC#223-TR-01.1, during the development and implementation process.

This Project Summary documents the project objectives and deliverables, contents of the activities, including workshop sessions and participating economies and organizations, and summarizes participant feedback, lessons learned, and conclusions and additional considerations.

1.1   Structure of the Project Summary

This document is structured as follows:

- An **Executive Summary**, which introduces the project and its approach to building randomness and unpredictability into AVSEC countermeasure development and implementation in APEC.
- **Section 1** introduces the project, by outlining the objectives and methodology, and describes the intended deliverables. The original Concept Note, original Project Proposal, and final approved Project Design Amendment and Extension form may be referenced in Appendix A.
- **Section 2** documents the project beneficiaries, including Member Economy and non-member participants in the various project activities.
- **Section 3** provides a brief summary of sessions from the two-part workshop, with workshop agendas outlined in Appendix B.
- **Section 4** summarizes participant feedback from the project activities, including workshop and webinar questionnaires, follow-up survey, and the targeted interview, with participant responses detailed in Appendix C.
- **Section 5** outlines random and unpredictable AVSEC countermeasure development and implementation best practices, which includes the Outreach Campaign Briefer provided in Appendix D.[1]
- **Section 6** outlines additional considerations from the project, including recommendations and next steps.
- **Section 7** concludes the Project Summary.
- **The Appendixes** complements the main document and serves as a reference to the various sections in the document, as outlined.

1.2   Project Objectives

By introducing the concept of random and unpredictable AVSEC countermeasure implementation, this project addressed the risks associated with trusted insiders, complacency in the implementation of security controls and the negative impact this can have on their deterrent effect, and how to efficiently use limited resources to effectively target known threats and mitigate assessed risk. The application of random and unpredictable techniques is promoted in the ICAO SARPs of Annex 17 to the Chicago Convention, and provided for in the ICAO Security Manual (Doc 8973). As such, Member Economies are obligated to consider incorporating these techniques in their deployment of AVSEC resources in order to achieve effective security outcomes. Understanding and employing risk analyses and risk management principles allows for more targeted

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[1] The Best Practices Guidelines may be found in APEC Publication APEC#223-TR-03.1.

application and efficient use of resources to achieve the greatest security outcome, and promote the development of innovative approaches to AVSEC. Using these techniques and applying these principles ensure greater fiscal and resource management and support the sustainability of operations in light of the continued growth of the aviation sector within an ever-changing threat environment. The implementation of random and unpredictable AVSEC countermeasures has sustained benefits for every economy, from economies that are in the early stages of developing their AVSEC programs to economies with established AVSEC programs, but it is particularly relevant for those operating with very limited AVSEC resources.

This project consisted of virtual workshop and webinar sessions, project evaluation instruments, such as questionnaires, follow-up surveys, and targeted interviews, and an Outreach Campaign Briefer, culminating in a Best Practices Guidelines to enhance Member Economies' security countermeasure policies and programs within the aviation domain. The workshops covered case studies of programs and best practices, how to create and tailor tactical responses to risk, the benefits of conducting risk analyses, identification of resources to leverage for risk mitigation, and an overview of the international Standards and Recommended Practices (SARPs) that promote the implementation of countermeasures using random and unpredictable techniques.

The objectives of this project were four-fold:

1. Ensure participants understand the international SARPs governing the application of random and unpredictable techniques in their AVSEC regime, with a focus on airport-level operations.

2. Increase participants' knowledge of the insider threat within the aviation domain, how to address security issues using risk-based approaches, and better leverage existing resources to mitigate that threat.

3. Build support for participants to implement randomness and unpredictability within their AVSEC operations through risk analysis principles and risk management to mitigate identified vulnerabilities.

4. Foster evidence-based risk-informed decision making to support a more robust Security Culture.

1.3 Project Methodology

The target audience of this project were individuals directly involved in the development and/or operationalization of AVSEC measures and associated policies, programs, and regulations within APEC Member Economies, both at the domestic (regulator) level and airport (operator) level. It was imperative to have a good mix between regulator and operator level participants as the successful development and implementation of risk-based countermeasures require alignment of (and sometimes change in) the institutional mindset at both levels and throughout the aviation environment. Both need to work collaboratively to apply project principles and achieve project outcomes. Beneficiary profiles included Member Economy AVSEC officials, policy makers and regulators, as well as aviation industry stakeholders responsible for AVSEC.

Throughout the project, participants were required to complete and return pre- and post-workshop questionnaires by the end of the workshops and webinar, as well as participate in the follow-up survey and targeted interview; however, only a few participants were selected to participate in the latter activity. In these evaluation methods, each participant was encouraged to share their views and advice on the project's impact and efficiency as well as possible suggestions and policy implications for future APEC-related cooperation programs and activities.

All project activities, including workshops, were conducted in English.

1.4 Project Deliverables

As approved in the Project Proposal, the deliverables for the project were two-fold:

1. A Best Practices Guidelines (refer to APEC Publication APEC#223-TR-03.1), which compiles the inputs from experts and participants collected during the workshops and project activities.

2. A Project Summary (this document), which outlines the details of the project.

2   Project Beneficiaries

2.1 Overview

The beneficiary profiles for this project, also outlined in Section 1.3, included Member Economy AVSEC officials, policy makers and regulators, as well as aviation industry stakeholders responsible for AVSEC. Individuals were invited to participate from each of the 21 APEC Member Economies and solicited through TPTWG messaging, in consultation with the CTWG[2] and TWG. In accordance with the Malaysian Host Year's priorities and Proposed TPTWG Work Plan for 2020, this project upheld the initiative to encourage participation by Women in Transport. To this end, the Project Overseer strove to ensure a healthy mix of women and men among the invited participants, speakers, and experts.

Workshop participants were not envisioned as the only beneficiaries for this project. After each workshop, participants were encouraged to partner with stakeholders within their respective economy's aviation environment to form an implementation plan and apply the lessons learned. Through post-workshop activities and engagement, principles learned during the workshop were able to be replicated and implemented, thereby strengthening the security of the APEC region's aviation ecosystem and the global aviation network. Regardless of who participated in the workshops, all APEC Member Economies had access to the workshop materials and will have access to the project deliverables through the APEC Collaboration System (ACS) site[3] to consult and hopefully introduce/implement the principles and techniques within their respective economies.

Focal points of respective Governments of the APEC Member Economies in the TPTWG, CTWG, and TWG were encouraged to nominate their proposed participants and speakers through messaging coordinated by the APEC Secretariat. Participants were encouraged to attend all project activities, including both workshops and the Mini Webinar, because Part 1 introduced key concepts of the project and Part 2 expanded on and provided a practical application of those concepts. Because the project's components built on each other, without attending all sessions, participants would be unlikely to have a full understanding of random and unpredictable AVSEC countermeasures and would be less likely to actively contribute to the discussions and, ultimately, to successfully implement the project's concepts in their respective economy's aviation operations.

In total, 86 individuals participated in the Project activities from 14 APEC Member Economies and several non-member industry organizations. APEC Member Economy participants and experts included representatives from Australia, Canada, Chile, Indonesia, Japan, Malaysia, Mexico, New Zealand, the Philippines, Republic of Korea, Chinese Taipei, Thailand, United States, and Viet Nam. Non-member participants and experts included representatives from ICAO and Airports Council International (ACI) World.

2.2 Gender Parity Target Goals

The Project Overseer did not discriminate and was inclusive when inviting AVSEC experts to participate in and contribute to the project. The Project Overseer ensured both women and men were invited to, engaged in and participated in all activities of the project. As noted in the Project Proposal, the Project Overseer targeted participant engagement of at least 30.0% of women between each of the two categories: 1) participants, and 2) experts and other contributors. The Project Overseer collected sex disaggregated data for all participants and experts during the nomination process of the Project, and this gender parity data is outlined in Table 1.

As shown in Table 1, the Project Overseer was able to meet the target goal of at least 30.0% of female experts and speakers for the project workshops and webinar, culminating in an overall rate of 38.0% female experts and speakers. For female participants, the Project Overseer was able to meet the target goal of at least 30.0% of female participants in both Part 1 and Part 2 of the project, with 31.9% and 38.7% female participants,

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[2] Until the sunset of CTWG in 2021.
[3] Project materials may be found on the APEC ACS site: http://mddb.apec.org/Pages/search.aspx.

respectively. However, the Project Overseer was not able to achieve the target goal of 30.0% female participants for the Mini Webinar. The Project Overseer communicated the gender parity target goal when soliciting participants for the project and its activities, but circumstances outside of the Project Overseer's control (e.g., scheduling conflicts and changes in personnel) caused some participants to be unable to attend and participate in every project activity. Despite this, the Project Overseer met and exceeded both gender parity target goals with an overall average of 32.5% female participants and 38.0% female experts and other contributors.

Table 1. Sex disaggregated data from Part 1 and 2 of the project, plus the Mini Webinar.

Type of Participant	Sum	Male (%)	Female (%)	Female Target Goal (%)
Overall				
Total	*86*	*64.7*	*35.3*	*30.0*
Participant	57	67.5	32.5	30.0
Expert and Speaker	29	62.0	38.0	30.0
Part 1 – Virtual Workshop				
Total	*57*	*59.0*	*41.0*	*30.0*
Participant	47	68.1	31.9	30.0
Expert and Speaker	10	50.0	50.0	30.0
Mini Webinar				
Total	*39*	*71.1*	*28.9*	*30.0*
Participant	26	73.1	26.9	30.0
Expert and Speaker	13	69.2	30.8	30.0
Part 2 – Virtual Workshop				
Total	*46*	*64.0*	*36.0*	*30.0*
Participant	31	61.3	38.7	30.0
Expert and Speaker	15	66.7	33.3	30.0

3   Summary of Sessions

Originally envisioned as a four-day in-person workshop during the Concept Note phase, then a two-day two-hour virtual workshop (Part 1) and a three-day in-person workshop with interactive components and an airport site visit (Part 2) during the Project Proposal phase, due to international travel restrictions related to the COVID-19 pandemic, the Project Overseer requested and received approval from the APEC Secretariat to amend the design of the project, through the Project Design Amendment and Extension form process. While the amendment provided additional time for the Project Overseer to consider the feasibility of hosting an in-person workshop, ultimately Part 2 had to be adjusted to a virtual delivery. With this change, the Part 2 workshop was consolidated from three full days in-person to two virtual sessions of three hours each. Additionally, specific aspects of the project were eliminated in order to accommodate the virtual format, including each participant's creation of an implementation plan, interactive small group activities, and the airport site visit. However, to compensate for the reduction in interactive small group activities and to continue the conversation between Part 1 and Part 2, the Project Overseer added the Mini Webinar, a single three-hour session, to provide an in-depth examination of the operational implementation of Random and Unpredictable Security Programs by the U.S. TSA, with the security operations at Philadelphia International Airport (PHL) in Pennsylvania serving as a case study. Despite the changes to the project, overall, participants actively participated in the virtual workshops and found benefit in what the workshops provided, which is further explored in Section 4.

The following sub-sections provides a brief summary of the Part 1 and Part 2 workshop, and the Mini Webinar sessions.

3.1 Part 1 Workshop

3.1.1 Overview of Security Culture as a Basis for Random and Unpredictable Security Measures

Ross Lockie, ICAO, provided an overview of Security Culture, its elements, and resources available through ICAO and other sources to build and implement an effective Security Culture regime within economies. ICAO defines Security Culture as "a set of norms, beliefs, values, attitudes and assumptions that are inherent in the daily operation of an organization and are *reflected by the actions and behaviors* of all entities and personnel within the organization." ICAO designated 2021 as the Year of Security Culture (YOSC), and as such, ICAO hosted numerous Security Culture events, including trainings, and provided Secretariat support in the form of the ICAO Security Culture website to share articles, guidance, videos, and trainings; the ICAO Security Culture Workshop and other training support; and the Security Culture self-assessment[4] for economies to understand what aspects of an effective Security Culture are already in place and identify and prioritize next steps to enhancing their Security Culture. After laying the groundwork with Security Culture, Mr Lockie emphasized that random and unpredictable countermeasures can complement an effective Security Culture and supplement Security Culture activities. Admitting that it may sound counterintuitive, security service providers must have a plan but it must not be observable to outsiders. When asked if it is enough for economies to say they implement random and unpredictable countermeasures as a secondary measure, Mr Lockie responded that there is no one-size-fits-all answer, as programs should be determined based on the results of a risk assessment specific to the subject operational environment (e.g., airport).

3.1.2 What do Random and Unpredictable Security Measures Look Like?

Alyssa Gee, U.S. TSA, described what random and unpredictable aviation security countermeasures look like and practical elements that should be included when designing them, while also considering international SARPs and guidance material. Random and unpredictable AVSEC countermeasures can take many forms, such as pat-

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[4] https://www.icao.int/Security/Security-Culture/Pages/State-self-assessment.aspx.

downs, physical searches, document verification, and visible patrols, and are versatile as to where, when, and how they can be applied, based on risk assessments and/or intelligence information. These countermeasures should be a mix of both overt and covert measures, meaning some countermeasures should be visible to serve as a deterrent, while others should not be visible for effective detection. Ms Gee stressed that random and unpredictable AVSEC countermeasures should be an additional layer to the baseline security measures and complement predictable and static security measures; they are not intended to be implemented in lieu of the baseline security measures. When a participant commiserated the difficulty of conducting random and unpredictable AVSEC countermeasures across the entire airport operating environment, Ms Gee advised that a good way to introduce randomness and unpredictability is to focus on passenger screening at the checkpoints in an effort to introduce the concepts and measure resource requirements first, then expand from there to other areas of the airport as the management and deployment processes become more ingrained.

3.1.3 Programmatic Elements and Requirements for Implementing Random and Unpredictable Security Measures

Continuing her presentation, Alyssa Gee, U.S. TSA, provided an overview of how to create a random and unpredictable AVSEC countermeasures program, starting with existing legislative authorities, if any, and then moving on to setting up a regulatory (security policy and program) framework, and then creating a designated team to promote a consistent approach. Once the regulatory and policy groundwork is laid, identifying security functions currently in place that could be implemented in a random and unpredictable manner is necessary in order to establish a baseline from which the protocols can be built. Economies should then consider their available capabilities, including resources, locations, and actions, and the capabilities of their stakeholders to develop mitigation options. Echoing Mr Lockie, Ms Gee highlighted that the deployment and implementation of AVSEC countermeasures, from a programmatic management perspective, should be scheduled to ensure they are employed effectively, while also ensuring they are random and unpredictable in their application so as to mitigate against the insider threat. Participants were interested in learning more on how to schedule countermeasures that are supposed to be random and unpredictable and how to protect those schedules from insiders. When asked what other measures can be required to employ randomness and unpredictability when the baseline requirement is 100% screening for non-passengers, Ms Gee responded that the types of screening should be varied. Even if passengers or non-passengers were already screened, teams could be deployed throughout the security restricted area (SRA) to conduct identification (ID) checks, secondary screening, or explosives trace detection (ETD) testing (using mobile equipment) in random and unpredictable locations other than the static checkpoint and at varying times throughout the day.

3.1.4 Consideration of Risk in Designing Random and Unpredictable Security

David McKinley, U.S. TSA, reviewed the concepts of risk and its components – threat, vulnerability, and consequence – while emphasizing the importance of conducting risk assessments to guide the development, deployment, and implementation of random and unpredictable AVSEC countermeasures. By breaking down the components of risk, one may rank different risk scenarios in an effort to prioritize risk mitigation strategies. This is particularly crucial for economies or organizations with limited available resources, as it helps to efficiently allocate limited resources where they are the most effective to counter the threat and therefore 'buy down' or reduce risk. Participants were intrigued with the concept of prioritizing risk and questioned how to rank risk scenarios with high vulnerability vs. low impact and vice versa, and similarly how to balance threats that require mitigating, as not all threats are "equal" in terms of likelihood and consequence. For these questions, Mr McKinley suggested participants look into the various threats to AVSEC in the context of their given location (e.g., at the economy level and/or at the airport level) and question what is the likelihood of any given attack (threat) happening. Resources, such as the ICAO Aviation Security Global Risk Context Statement (Doc 10108) and similar regional, economy-specific and local threat assessments, are good sources of information when considering the threat and risk picture. However, for purposes of random and unpredictable countermeasure

development, proper risk assessments should be conducted at the airport level to ensure the most effective AVSEC countermeasures are developed and implemented for that specific airport.

3.1.5 Random and Unpredictable Security Measures Case Study

Carrie Hazel, U.S. TSA, Michael Lynch, Transport Canada, and Nathalie Herbelles, ACI World, participated in a panel discussion that highlighted their experiences and lessons learned in implementing their economy or organization's programs. Ms Hazel provided an overview on the U.S. TSA's previous random and unpredictable AVSEC countermeasures program, called Playbook, and its current application, called the Advanced Threat Local Allocation Strategy (ATLAS). With ATLAS, a designated Coordinator works with airport stakeholders and subject matter experts to conduct a vulnerability assessment of the airport, the results of which drives the prioritization and scheduling of mitigation activities across the airport operating environment. This ensures that the mitigation measures are conducted in the right place and at the right time, and assists with keeping activities as random and unpredictable as possible. To safeguard the schedule and mitigation activity information from insiders or others who do not have a need to know, the schedule (time, location(s), and measure(s)) is populated only a few hours before it will be deployed by a limited number of individuals (i.e., select Supervisors).

For Canada's multilayered approach to non-passenger screening, Mr Lynch highlighted that security controls employed at airports in Canada include background checks, perpetual vetting, access controls to restricted areas of the airport, as well as random and unpredictable AVSEC screening. To determine who will be subjected to the additional screening, Transport Canada uses a randomizer tool to remove guesswork for the security operations. This way, non-passengers have no way of knowing if they will be selected for screening when entering the non-passenger screening checkpoint, or when entering through other airport access points, such as vehicle access gates.

Ms Herbelles applauded the random and unpredictable approach to AVSEC because it allows AVSEC operators to do more with the available resources they have and because it also encourages innovation. According to Ms Herbelles, these programs provide immense value when mitigating the insider risk, as they take a static system (aviation screening checkpoint operations) and make it unpredictable to keep everyone on their toes. Additional benefits of unpredictability include mitigation measures that are more aligned to the assessed risk context of a given location, which can then be scaled up or down based on the evolving risk environment over time.

When asked about the importance of a close working relationship between airport stakeholders and the security operator executing random and unpredictable AVSEC countermeasures across the airport, Ms Hazel explained that it is incredibly important to establish a close relationship early on to ensure the most effective deployment of the program where all stakeholders have buy-in and can contribute to the program through partnership and coordination. Because of the close working relationship at PHL, TSA has conducted joint activities with the airport authority and local law enforcement who add significant value to the program by providing an extra pair of eyes to observe and report who may be circumventing the additional screening measures and by helping to close off airport access points to funnel employees to the random and unpredictable security activity. Ms Herbelles concurred that the flexibility to be unpredictable in day-to-day aviation security activities should be 'the fruit born from a very good discussion' between the airport operator and the regulator, which will minimize confusion and ensure greater participation and collaboration in the execution of the program. From Transport Canada's perspective, Mr Lynch finds it is key to have all stakeholders at the table when developing the regulatory framework so that they are on-board with the operational implementation of the mitigation measures that are then developed. This also helps to ensure that all relevant stakeholders and other partners understand and appreciate the risk context within the subject airport/location and how these activities will more effectively counter likely threats and "buy down" the risk, thereby contributing to a better, safer, and more secure operating environment.

3.2 Mini Webinar

3.2.1 Overview of Departments Implementing Random and Unpredictable Measures

Carrie Hazel, U.S. TSA, presented a case study that involved an in-depth examination of the operational implementation of random and unpredictable aviation security programs by the U.S. TSA, with PHL in Pennsylvania. TSA developed and evolved several iterations of its program throughout the years, starting with the Aviation Direct Access Screening Program (ADASP), which involved a small mobile team that conducted non-passenger screening at direct access points to the secured areas of the airport, where the location and time of screening was changed daily. The merits of this program not only included setting the groundwork for additional random and unpredictable screening measures and having a big impact with minimal cost, but it also facilitated a relationship with aviation stakeholders, including: the airport authority, law enforcement, the airlines, airport vendors, and other airport employees. Over time, the ADASP evolved to a larger team that provided additional coverage, additional hours to conduct activities, and development of additional screening procedures to conduct to mitigate other risks, such as the insider threat. From this expansion, the TSA 'Playbook' program was born, which involved a number of security controls and screening activities, or "plays," that could be deployed at different times and in different locations. And TSA continued to evolve and adapt its program into its current state, which is now called ATLAS. Under the ATLAS program, the teams are trained in Behavior Detection and are deployed to all areas of the airport to continuously conduct aviation security countermeasures on passengers and non-passengers, employing randomizer software to determine the random and unpredictable schedule of activities. Participants were curious what challenges TSA experienced when starting up the ADASP, to which Ms Hazel responded that gaining the airport community's buy-in was a challenge in the beginning because some did not understand why they had to undergo additional screening as a non-passenger. However, she stressed the relationships she built with aviation stakeholders in advance was crucial to amplify the messaging TSA published regarding the new security measures, which led to an increase in understanding and quicker acceptance of the new measures by airport employees.

3.2.2 Overview of Methodologies Used in Those Departments

Carrie Hazel, U.S. TSA, invited her PHL colleagues to share their experiences with employing random and unpredictable AVSEC countermeasures, and described the methodologies used, as well as the importance of planning, outreach and engagement, and stakeholder involvement in each program. Osbourne Shepherd, Scott Vance, and Jim Byrne recounted opportunities to incorporate Compliance Inspectors into random and unpredictable activities, through unannounced or covert testing of security controls, addition of Inspectors as visible deterrents while patrolling, and conducting random ID checks, among others. As part of the ATLAS teams at PHL, Nathan Benson, Alex Broughton, Joe Belger, and Troy Small described how their specific positions are integral to ATLAS activities. As Transportation Security Specialists – Canine, Mr Benson and Mr Broughton, along with their canine teammates, can be deployed to different areas of the airport to act as visible deterrents and to conduct screening for explosive materials in non-traditional locations, such as at the gates, baggage claim, ticket counters, or even at off-airport locations as a part of special joint activities with local law enforcement. As Transportation Security Officers (TSOs), Mr Small and Mr Belger make up the core of the ATLAS team, conducting the screening measures at the various locations as outlined in the randomized schedule. Participants remarked about the interconnectedness of the various TSA employees and aviation stakeholders participating in ATLAS activities, but questioned how economies with more limited resources might be able to employ a similar program. The U.S. TSA experts advised that economies should assess their available resources to determine what may be allocated to conduct random and unpredictable activities, including personnel, equipment, time, etc. Through this resource assessment and allocation, economies can have a better understanding and more realistic point from which to start developing plans and, when coupled with a risk assessment of the operating environment and/or local threat intelligence, economies can then prioritize the risks on which they should focus first. Moreover, economies could start with a smaller scale operation to test the feasibility and determine actual resource needs; starting with just one random and unpredictable operation per

day or one operation that is conducted over just one hour per week, and then build from there, adding additional risk priorities and appropriate mitigation activities when and where possible. The important point for economies is to start assessing their resource availability and resource needs as well as the risks within their specific context(s), and from there actually start conducting operations in accordance with those assessments. This will ensure the operations are data-driven and risk-based to ensure both security effectiveness and sustainability.

3.3 Part 2 Workshop

3.3.1 Part 1 Review: Random and Unpredictable Security Countermeasure Concepts

To refresh the principles learned some time before during Part 1, Steve Fraser, U.S. TSA, provided a review of the elements and benefits of random and unpredictable AVSEC countermeasures. He emphasized the critical point that an effective random and unpredictable program should be informed by a local risk assessment and/or intelligence information. Additionally, he stressed that random and unpredictable AVSEC countermeasures can complement and be leveraged in response to an effective Security Culture regime.

3.3.2 Analyzing Vulnerability to Reduce Risk

Emphasizing the necessity of conducting risk assessments, Ryan Adams and Tim Sanderson, U.S. TSA, discussed the core concepts of vulnerability analysis, and how understanding the key elements of vulnerability – countermeasure effectiveness, countermeasure encounter rate, and countermeasure implementation effectiveness – assists in the development of a vulnerability register. Through the application of root cause analysis principles, one may uncover the true problem(s) giving rise to identified vulnerabilities and may then make informed decisions on how to correct the problem(s) so as to effectively mitigate that specific vulnerability. Mr Adams and Mr Sanderson then demonstrated how participants would combine these elements to complete a vulnerability register, which was a foundational element of the workshop's practical exercises. To calculate the criticality of an event for the vulnerability register, the participants questioned if there is a way to determine risk tolerance, to which Mr Adams and Mr Sanderson suggested participants consider their economy's or organization's priorities and then determine, from that prioritized list of risks, for which they may have the lowest or highest appetite/tolerance.

3.3.3 Developing Risk Mitigation Tools

Kathryn Menconi and Miranda Fisher, U.S. TSA, explored how to identify suitable and sustainable AVSEC countermeasures to incorporate into risk mitigation tools, such as the Countermeasure Matrix Tool and the Random and Unpredictable AVSEC Countermeasure Implementation Plan, for further development. Ms Menconi stressed, suitability – the quality of being right or appropriate for a particular purpose or situation – and sustainability – the ability to be maintained at a certain rate or level, and avoidance of depletion of resources so as to maintain a security balance – must be considered in order to create effective AVSEC countermeasures. When considering what AVSEC countermeasures should be incorporated into the risk mitigation tools, Ms Fisher recommended that current screening capabilities and mitigation activities already being operated in the airport environment could be initially considered then expanded upon at a later date, as resources allow. Ms Menconi and Ms Fisher then guided participants through exercises to complete a Random and Unpredictable AVSEC Countermeasures Implementation Plan for a fictional airport, Atlantis International Airport (ATS). When asked how countermeasure effectiveness is measured, Ms Menconi explained that effectiveness is measured based on the immediate impact of a countermeasure against the risk or vulnerability to which it is applied; she also advised that second and third level impacts of those countermeasures should also be taken into account when measuring countermeasure effectiveness.

3.3.4 Practical Exercise for the Random and Unpredictable Security Countermeasures Implementation Plan

Applying the key concepts and lessons learned throughout the project, Brian Rogers, Ryan Adams, and Marc Staten, U.S. TSA, challenged participants to recognize suitable and sustainable countermeasures for specific vulnerabilities in a test environment. Mr Rogers, Mr Adams, and Mr Staten proctored practical exercises for participants to develop and execute an implementation plan for random and unpredictable security countermeasures, and encouraged participants to review the concepts and lessons learned thus far and to keep an open mind throughout the process so that all ideas could be duly considered. Using the fictional airport, ATS, they presented three different scenarios and asked participants, for each scenario, to define the vulnerability, identify the potential root cause and criticality, and determine the best countermeasures to mitigate that vulnerability. Participants were actively engaged in the practical exercises and were able to demonstrate their knowledge and comprehension of the project material.

3.3.5 Exercise Review: 'Hot Wash'

Brian Rogers, Ryan Adams, and Marc Staten, U.S. TSA, returned to provide a 'hot wash' review of the practical exercises and highlight insightful comments made during and after the exercises. Mr Rogers thanked the participants for their participation in the exercises and for their innovative thinking in mitigating vulnerabilities at the fictional airport ATS. He then highlighted a few profound comments from participants, such as when thinking about the root cause, too often we are quick to point to the human factor. However, if one keeps questioning why, then perhaps a deeper cause will emerge until the true root cause – whether a process limitation, procedural issue, or equipment malfunction – is identified. Mr Rogers also reiterated one participant's comment that a completed Countermeasure Matrix Tool could be used as supporting justification to request additional resources for a particular countermeasure, if the criticality and countermeasure effectiveness for that countermeasure are determined to be high. To this, he added that the justification for the resource request should also be supported by a risk assessment and corroborated by intelligence specific to the local area threat, which would bolster the request and indicate its criticality to security operations.

4   Project Evaluation Instruments

4.1 Methodology

In keeping with good international capacity development practices, the Project Overseer incorporated ample opportunities for participants to provide feedback to the organizers throughout the project lifecycle, from development to conclusion. These included pre- and post-workshop questionnaires, a follow-up survey, targeted interviews, as well as through regular communications between the Project Overseer and participants via email, to include updates to project timelines and activities. During each step of the project, the Project Overseer regularly reviewed and incorporated feedback received from participants to ensure the project activities not only met the project requirements outlined in the Project Proposal, but also participants' expectations, and that they addressed their areas of interest regarding risk-based AVSEC countermeasures. For example, as a result of participant discussions during the Part 1 Workshop and comments received in response to the workshop questionnaires, the Project Overseer understood participants were interested in learning practical ways to determine which random and unpredictable AVSEC countermeasures would be effective for the risk level at their airports; therefore, the Project Overseer incorporated this into the Part 2 Workshop through the practical exercises using fictional scenarios to guide participants through the steps to analyze their vulnerability and create an implementation plan at the airport level. Information compiled from the pre- and post-workshop questionnaires from both Part 1 and Part 2, the follow-up survey, and the targeted interview may be found in Appendix C.

Typically, the Project Overseer sent the pre-workshop questionnaire via email to participants one or two weeks in advanced of each workshop to solicit feedback from participants on what they wanted to learn during the workshop or to prompt participants to start thinking about concepts that were going to be discussed during the workshop, to encourage robust participation in the workshop and its discussions. Participants were requested to complete the two-page questionnaire and return it to the Project Overseer at any time prior to the workshop's start. The post-workshop questionnaire was sent via email to participants within days of the workshop and the Mini Webinar completion, typically a day or two after, to ensure participant feedback was fresh and participants could recollect the workshop's lessons learned. While there was often no deadline for completion of the post-workshop questionnaire – participants were requested to complete and return the questionnaire at their earliest convenience – the majority of the responses were received within two weeks of the workshop's end. The post-workshop questionnaire served as a standard Level 1 evaluation[5] of the workshop and included questions on the level of satisfaction with the workshop, level of usefulness of the information and materials covered, level of understanding and knowledge after completing the workshop, and how participants would apply what they learned during the workshop. Responses from the post-workshop questionnaire allowed the Project Overseer to monitor participants' overall satisfaction with the workshops and participants' increase (or decrease) in level of understanding and knowledge of the project's principles between the workshops and at the conclusion. These results will be further explored in detail in Sections 4.3 and 4.4.

The Project Overseer sent participants the follow-up survey after completion of the Part 2 Workshop to gauge the level of understanding of the project principles. The follow-up survey included questions on key concepts from the project thus far, as well as further solicited economies' best practices on developing and implementing random and unpredictable security countermeasure programs in the aviation environment. The follow-up survey was sent one month after the completion of the Part 2 Workshop with a request to complete and return the survey at the participants' earliest convenience and before the project concluded.

In an effort to ensure greater completion and return of questionnaires and survey, the Project Overseer often reminded participants of the request to complete the project evaluation instruments at least twice.

As the final activity for the project, the Project Overseer conducted targeted interviews on a select number of participant Member Economies. To determine who would be interviewed, the Project Overseer asked all

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[5] The Kirkpatrick Model is an internationally recognized tool for evaluating and analyzing the results of educational training and learning programs (https://www.mindtools.com/pages/article/kirkpatrick.htm).

participants of their interest in the targeted interview activity and directly invited seven participant Member Economies as well – those who had been most engaged during the project activities and that represented diverse experiences from the APEC region. Four participants agreed to be interviewed, however, due to circumstances outside of the Project Overseer's control (i.e., personal reasons and scheduling conflicts), only three interviews were conducted.

4.2 Challenges

Owing largely to continued international travel and other related restrictions due to the COVID-19 pandemic, the project was adjusted from its original Concept Note proposal of a four-day in-person workshop to a two-part virtual workshop and a Mini Webinar. Among other things, the adjustment meant changes to the project evaluation instruments, which provided additional challenges for the Project Overseer. With the increase from one to two workshops, the questionnaire expectations were accordingly doubled and an Outreach Campaign Briefer was added as an additional resource for participants. While the participants would have received the pre-workshop questionnaire similar to how it was conducted (i.e., sent via email to participants about two weeks before the workshop), had the workshop been in-person, the post-workshop questionnaire would have been completed in real-time before the workshop concluded and participants could have returned the questionnaire before leaving the meeting room. Therefore, the rate of completion for the post-workshop questionnaire was expected to have been higher and in-line with the target goal in the Project Proposal, which was an ambitious target goal. However, conducting the workshops virtually meant the project evaluation instruments were also disseminated, completed, and collected virtually, and the Project Overseer was limited to sending reminders to the participants to complete and submit the project evaluation instruments in a timely manner.

Additionally, because the Project Overseer was monitoring the status of COVID-19 transmission globally in the hopes of conducting Part 2 as originally envisioned (i.e., as an in-person workshop), the Project Overseer requested to extend the project activities by several months.[6] This extension allowed additional time for the Project Overseer to develop and host the virtual workshops, but in that time, some participants had changed jobs or became non-responsive to requests, therefore the rate of completion for the project evaluation instruments fluctuated, as indicated in Table 2. Regardless, despite not meeting the target completion rate, as proposed in the Project Proposal, and the challenges to which this gave rise, the quality of the feedback received from participants was high, as discussed in Section 4.3.

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[6] The original Concept Note was from October 2020 to December 2021, but the project timeline was amended, as approval by the APEC Secretariat, to conduct the project from October 2020 to December 2022.

Table 2. Rate of completion of project evaluation instruments.

Project Evaluation Instruments	Sum	Percentage of Completion (%)	Target Goal (%)
Part 1 – Virtual Workshop			
Number of Part 1 participants	*57*	*N/A*	*N/A*
Pre-workshop questionnaire	37	64.9	90.0
Post-workshop questionnaire	26	45.6	90.0
Mini Webinar			
Number of Mini Webinar participants	*39*	*N/A*	*N/A*
Post-Mini Webinar questionnaire	7	17.9	N/A[7]
Part 2 – Virtual Workshop			
Number of Part 2 participants	*46*	*N/A*	*N/A*
Pre-workshop questionnaire	17	37.0	90.0
Post-workshop questionnaire	7	15.2	90.0
Follow-up Survey			
Number of project participants	*86*	*N/A*	*N/A*
Follow-up survey	5	5.8	N/A
Targeted Interview			
Number of project participants	*86*	*N/A*	*N/A*
Follow-up survey	3	3.5	N/A

4.3 Project Monitoring and Evaluation

As shown in Table 3 and indicated in the Part 1 and Part 2 pre-workshop questionnaire, an average of 88.9% of respondents have at least one year of experience in their current position, with many having 1-15 years of experience, and respondents were often in supervisory or managerial positions (74.0%), which included responsibilities for operations (51.9%), administration and personnel (46.3% each), and planning (42.6%), as well as other responsibilities such as project management and compliance. As detailed in Sections 1.3 and 2.1, the target audience for the project (selection criteria) were individuals who are directly involved in the development and/or operationalization of AVSEC measures and associated policies, programs, and regulations within APEC Member Economies. Responses supported and confirmed that the target audience for the project was met.

To evaluate whether project objectives were met, the Project Overseer included target goals in the Project Proposal, as outlined in Appendix A.2. For the first outcome – participants have expanded their knowledge on workshop principles – the target indicator was at least a 50.0% increase in knowledge of workshop principles. Respondents to the Part 1 and Part 2 post-workshop questionnaires indicated a 92.3% and 100.0% enhancement (either significantly enhanced or somewhat enhanced) of understanding and knowledge after completion of both the Part 1 and Part 2 Workshops, respectively.

While no specific questions were asked in the follow-up survey to quantify responses in meeting the other two outcomes – behavior is changed to include use of evidence-based, risk-informed decision making, and risk-based random and unpredictable countermeasures are further developed and implemented – and related target goals, quantitative feedback from participants indicate at least a third of participants will undertake behavior changes in-line with workshop principles and/or the start or increase of activities directly related to workshop

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[7] No target goal of completion was indicated in the Project Proposal for the Mini Webinar, follow-up survey, nor the targeted interview.

principles.[8] This is demonstrated by responses to the question asking participants how they will apply what they learned during the virtual workshop.

Additionally, all participants who were interviewed were asked specific questions relating to Outcomes 2 and 3, and at least two-thirds reported a change in behavior in-line with workshop principles and the active or on-going development and/or implementation of countermeasures. These responses specifically indicated the project met all of the intended outcomes.[9]

Table 3. Select responses from Parts 1 and 2 pre-workshop questionnaires.

Questions	Part 1 Response Sum	Part 2 Response Sum	Average Sum	Average Percentage of Respondents (%)
Number of respondents	*37*	*17*	*27*	*N/A*
How long have you been in your current position?				
< 1 year	5	1	*3*	*11.1*
1-5 years	16	11	*13.5*	*50.0*
6-15 years	16	2	*9*	*33.3*
> 15 years	0	3	*1.5*	*5.6*
Do you have superviosory and/or managerial responsibilities in your current position?				
Yes	26	14	*20*	*74.0*
No	10	3	*6.5*	*24.1*
If yes, please mark all that apply:				
Operations	18	10	*14*	*51.9*
Administration	15	10	*12.5*	*46.3*
Personnel	14	11	*12.5*	*46.3*
Budget	5	4	*4.5*	*16.7*
Planning	15	8	*11.5*	*42.6*
Other	5	4	*4.5*	*16.7*

4.4 Analysis

Responses to the Part 1 pre-workshop questionnaire also provided the Project Overseer a baseline understanding of if economies already employed random and unpredictable AVSEC countermeasures (62.2% of respondents indicated yes), whereas the Part 2 pre-workshop questionnaire provided a quick look at which random AVSEC countermeasures were already employed in participants' economies. The most employed random AVSEC countermeasures, as indicated by responses to the questionnaire, included: ETD (94.1%) and Behavior Detection (94.1%); secondary/enhanced screening measures (82.2%); patrols (76.5%); ID/credentials checks (70.6%); monitored closed circuit television (CCTV) (58.8%); and Explosives Detection Dog (EDD) (35.3%). It was no surprise to the Project Overseer that the top most employed random AVSEC countermeasures were ones that could be tied to ICAO Annex 17 – *Security* Standards, such as Standard 4.2.6 and 4.4.2, which requires appropriate screening methods that are capable of detecting the presence of explosives and explosive devices, with the use of ETD technology during screening satisfying that requirement. Annex 17 SARPs provide an international baseline for AVSEC measures and it stands to reason that ICAO requirements would, generally, be widely implemented by aviation organizations globally.

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[8] The target goals were at least 30.0% report change in behavior in-line with workshop principles, and at least 30.0% report the start or increase of activities directly related to workshop principles, respectively.

[9] The target goals were at least 40.0% of interviewees report change in behavior in-line with workshop principles, and at least 40.0% of interviewees report the start or increase of activities directly related to workshop principles, respectively.

Building Randomness and Unpredictability into Aviation Security Countermeasure Development and Implementation

On the other hand, the lesser employed random AVSEC countermeasures are ones that are not necessarily tied to Annex 17 SARPs and are ones that often require resources to develop and implement. For example, the limited availability and high cost of maintaining properly trained EDDs, plus training the handler teams, is often cost prohibitive for some aviation organizations; therefore, it is understandable that the use of EDD for random AVSEC countermeasures may be limited. However, in thinking about effective resource allocation, when asked what challenges do participant's economy or organization face in developing, analyzing, or implementing random security countermeasures in the Part 2 pre-workshop questionnaire, only one respondent directly indicated procurement of technology as a challenge. Most respondents indicated challenges with increasing collaboration by stakeholders, including passengers, and the sharing of threat information and risk analysis. Understanding receiving stakeholder buy-in and incorporating evidence-based, risk-informed decision making is vital to the development and implementation of random and unpredictable aviation security countermeasures, which has sustained benefits for every Economy, the Project Overseer considered responses to the various project evaluation instruments and incorporated best practices for the challenges indicated by participants in the Best Practices Guidelines.

It is clear from responses to each of the project evaluation instruments, that participants were interested in hearing from other Member Economies, particularly in relation to the following topics: how to achieve and leverage buy-in from stakeholders, how to determine which AVSEC countermeasures are most appropriate for their operations; and practical exercises to measure the effectiveness of random and unpredictable AVSEC countermeasures. Therefore, the Project Overseer incorporated these suggestions into the Part 2 Workshop and provided other opportunities for participants to highlight and share their best practices for inclusion in the Best Practices Guidelines (e.g., through completion of the follow-up survey and targeted interview).

Responses to the project evaluation instruments also provided key considerations should the Project Overseer consider seeking approval to continue the project under the auspices of APEC through the next evolution, or conducting the project with another international organization, such as ICAO. Such suggestions, included: conducting the workshops with greater frequency, potentially extending the length of the project; including additional presentations by APEC Member Economies to compare and contrast diversity of random and unpredictable AVSEC countermeasures and best practices; and conducting an in-person component so participants may see and experience the implementation of the project principles in a 'live' environment. Feedback from participants were crucial to the enhancement of the project during the design and implementation phases, and are also important considerations for the next steps of the project, as further detailed in Section 6.2.

5 Random and Unpredictable Aviation Security Countermeasures Best Practices

Throughout the project, participants were encouraged to share best practices to build randomness and unpredictability into AVSEC countermeasure development and implementation within their respective economies through the project evaluation instruments and during the workshops. The initial set of recommendations were captured from inputs from the Part 1 Workshop and included in the Outreach Campaign Briefer that was shared with participants in March 2022. The Briefer may be found in Appendix D. The Best Practices Guidelines, which may be found in APEC Publication APEC#223-TR-03.1, expand on information already found in the Briefer and captures additional best practices and lessons learned over the entire life of the project. The Guidelines provide key considerations participants noted throughout the project, as well as additional considerations where participants noted challenges in their own programs, namely where to start and how to develop or implement truly random and unpredictable AVSEC countermeasures. The Guidelines document is by no means an exhaustive list of best practices; however, it provides a true look at key principles explored in depth throughout the project and best practices, references and resources that participants and experts offered as crucial to building randomness and unpredictability into AVSEC countermeasure development and implementation.

6 Additional Considerations

6.1 Recommendations

Achievement of the project outcomes includes the integration, institution, and implementation of the project principles (i.e., risk management, random and unpredictable countermeasures) into Member Economies' domestic program policy frameworks and domestic security programs, and into aviation operators' procedures. If achieved, workshop principles would be sustained due to their perpetuation in the domestic programs and procedures. Knowing that changes to policy are often lengthy endeavors and may take longer than this project's timeline to achieve, participants are encouraged to continuously consult the Best Practices Guidelines and engage with other workshop participants to build a supportive AVSEC network. This project was designed to give participants the building blocks for successful completion of the project outcomes; however, participants must have the will to actually complete them. The Project Overseer will continue to provide support to select participants through initiatives in future projects, and as needed and requested by any of the project participants, if/as possible.

Additionally, as noted in the Project Proposal, the Project Overseer will also consider conducting observation visit to select economies, with the agreement of the host government, and based on participants' answers to the targeted interview and overall participation in the project. The intent of the observations will be to measure the implementation and success of the project principles within the economy's policy and infrastructure, and to provide additional support with and economy-specific guidance on the development and implementation of random and unpredictable AVSEC countermeasures. These observations, should they be conducted, will be evaluated and reported to APEC at future TPTWG meetings.

The Project Overseer may adapt the project activities and Best Practices Guidelines and apply it to a random and unpredictable AVSEC countermeasures project designed for other regions, transportation sectors (i.e., maritime, land, intermodal, etc.), or for the benefit of relevant industry stakeholders. This would allow even more professionals in other modes of transportation to enhance their security posture and counter the insider risk by adapting and using the Best Practices Guidelines across the different transportation sectors. Conducting this project again, with a focus on other regional expertise or modes of transportation, will help to better inform and advance economies' knowledge that AVSEC countermeasures and risk analysis principles are important factors in transportation security writ large. This will also promote continued discussions on AVSEC and allow for substantive development and expansion of the Best Practices Guidelines across sectors. Participants of this workshop also had a similar suggestion to include other aviation stakeholders to speak upon their experiences in building randomness and unpredictability into AVSEC countermeasure development and implementation.

Any future iterations of the project should also take into consideration other key suggestions from the participants: for example, conduct the workshops with greater frequency. The need to split the workshop into two parts and the ability to conduct them in a timely manner were particular challenges that were a direct and unforeseen result of the COVID-19 pandemic. Should the project be conducted again or continued in the future, conducting the workshop(s) in-person, as originally intended, would be pursued by the Project Overseer now that international travel restrictions have been eased or are easing globally. Other suggestions from participants included inviting even more APEC Member Economies to share their experiences, in an effort to compare and contrast diversity of AVSEC countermeasure programs and best practices. Throughout the project, the Project Overseer encouraged experience sharing from all APEC Member Economies and hopes that in the future the experience sharing will continue within and outside of APEC. Additionally, should the project be continued, the Project Overseer would look forward to incorporating a follow-up survey or activity with the original participants to see what best practices were taken onboard and how their economy's AVSEC policies and programs might have evolved over time. These suggestions and others will be taken into consideration for future iterations of the project, as appropriate.

6.2 Next Steps

After the Best Practices Guidelines and Project Summary have been endorsed by the APEC TPTWG and the collaborating stakeholder working groups, the Project Overseer will share them with ICAO through an appropriate forum, such as ICAO's AVSEC Panel of Experts, AVSEC Symposium, and/or the AVSEC High-Level Conference. This will inform ICAO on the work being conducted within APEC Member Economies on the development and implementation of random and unpredictable aviation security countermeasures and will promote the Best Practices Guidelines for global dissemination and consideration. The Project Overseer will encourage ICAO to consider this project's outcomes and further promote implementation of the project principles with the aim of sharing the Best Practices Guidelines with other regions through the ICAO network, as well as influencing global standards and guidance material in this space. In sum, the continuation of this project, through dissemination of its outcomes and advancement of its objectives, would result in the emphasis on the interconnectedness of aviation across economies – both regionally and globally – and establish APEC as a regional and global leader in the development and implementation of random and unpredictable AVSEC countermeasures.

7   Concluding Remarks

This section concludes the main body of the Project Summary, summarizing the methodological steps taken to conduct the project, the challenges faced, outcomes of the project, as well as additional considerations. At the conclusion of this project, participants have demonstrated an expansion of their knowledge of risk and its components, the unique risk posed by aviation insiders, the root cause of vulnerabilities, and the policy implications therein. They have a greater understanding of how to apply risk management principles in the development and execution of security policies, programs, and plans and how to effectively leverage limited financial, human, and other resources in random and unpredictable ways to more effectively mitigate the assessed risk(s) within their respective economy.

With the increased understanding of the insider threat and the risks associated with the insider threat, participants are encouraged to formulate regulatory requirements and AVSEC policies and plans in a way that enables and facilitates more cost effective security operations, as well as more sound and transparent policy decision making. This would ensure that evidence-based, risk-informed regulatory and operational decision making are further incorporated within the aviation environment. Participants are encouraged, along with industry stakeholders, to work collaboratively to create a safe and secure aviation environment that is buttressed by a cohesive culture of security.

Throughout the project, participants developed cross-collaborative information sharing of APEC Member Economy AVSEC authorities' experiences and best practices, which culminated in the collation of the Best Practices Guidelines. Participants are supported throughout their development and implementation of risk-based random and unpredictable countermeasures within their domestic operations through the employment of risk analysis and risk mitigation principles.

It is the Project Overseer's hope that all participants, speakers, and experts found value in the project and will find value in the Best Practices Guidelines, which is intended as a living document to be updated as the project's activities are brought to other transportation groups to expound upon.

The Project Overseer would like to thank the participants, speakers and experts, and the project co-sponsors – Canada, New Zealand, Singapore, and Chinese Taipei – for their support and valuable contributions to *Building Randomness and Unpredictability into Aviation Security Countermeasure Development and Implementation*.

List of Appendices

APPENDIX A – Project Outlines

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- **A.2 Original Project Proposal**
- **A.3 Final Approved Project Design Amendment and Extension Form**

APPENDIX B – Workshop Agendas

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APPENDIX C – Project Evaluation Instruments

- **C.1 Part 1: Pre-Workshop Questionnaire**
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APPENDIX D – Outreach Campaign Briefer

Appendix A – Project Outlines

A.1 Original Concept Note
APEC Concept Note

*Please submit to APEC Secretariat Program Director. Concept Notes exceeding **3 pages** (including title page) and incomplete submissions will not be considered. Responses must be no less than 10pt font.*

Project Title:	Workshop – Building Randomness and Unpredictability into Aviation Security Countermeasure Development and Implementation

Fund Source *(Select <u>one</u> only):*

☐ General Project Account (GPA)

☐ Trade and Investment Liberalization and Facilitation Special Account (TILF)

☐ APEC Support Fund (ASF) – General Fund

☒ APEC Support Fund (ASF) – Sub-Fund. <u>You must nominate the sub-fund here:</u> Human Security

APEC forum:	Transportation Working Group (TPTWG), in collaboration with the Counter Terrorism Working Group (CTWG) and Tourism Working Group (TWG)
Proposing APEC economy:	United States of America
Co-sponsoring economies:	Canada, Chinese Taipei, New Zealand, Singapore
Expected Start Date:	October 2020
Project Completion Date: *See Chapter 7 Guidebook on APEC Projects*	December 2021
Project summary: *In 150 words -* • **What is the issue that you will address or examine in your project?** • **Outline the key things your project will do, in terms of what, where, when and with whom.** *(Summary <u>must be</u> no longer than the box provided. Cover sheet must fit on one page)*	This project is designed to enhance Member Economies' risk mitigation capabilities by examining how to best leverage their existing resources to target specific threats and identify vulnerabilities, and to assist aviation security authorities to determine when, where, and how to allocate future resources. The workshop will cover: case studies of programs and best practices; how to create and tailor tactical responses to risk; the benefits of risk analysis; and identification of resources to leverage for risk mitigation. It will also include an overview of the international standards and recommended practices that promote the implementation of countermeasures using random and unpredictable techniques. This project is designed as a continuation of the "Building a Culture of Security and Countering the Insider Risk" project, and will consist of a four-day instructional course and a follow-up survey. Oregon, United States is being considered to host this workshop in Spring 2021.

| **Total cost of proposal:** *(APEC funding + self-funding):*

 USD $111,000 | **Total amount being sought from APEC (USD):** $94,000

 By category: *Travel:* $71,000   *Labor costs:* $0

    Hosting: $20,000   *Publication & distribution:* $1,000   *Other:* $2,000
 (See Guidebook on APEC Projects, Ch. 9 to ensure all proposed costs are allowable.) |

Project Overseer Information and Declaration:

Name: Kalei Cravalho // Eric Yatar // David Mickalonis

Title: Program Analyst // Deputy Director // Branch Manager

Organization: U.S. Transportation Security Administration

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As Project Overseer and on behalf of the above said Organization, I declare that this submission was prepared in accordance with the **Guidebook on APEC Projects (the Guidebook)** and any ensuing project will comply with said Guidebook. Failure to do so may result in the BMC denying or revoking funding and/or project approval. I understand that any funds approved are granted on the basis of the information in the document's budget table, in the case of any inconsistencies within the document.

_____

Name of Project Overseer / Date

Project Synopsis

1. <u>**Relevance – Benefits to region:**</u> **What problem does the project seek to address? Does it have sustained benefits for more than one economy?**
By introducing the concept of random and unpredictable aviation security (AVSEC) countermeasure implementation, this project seeks to address the risks associated with trusted insiders, complacency in the implementation of security controls and the negative effects this can have on their deterrent effect, and how to efficiently use limited resources to effectively target known threats and mitigate assessed risk. The application of random and unpredictable techniques is promoted in the International Civil Aviation Organization (ICAO) Standards and Recommended Practices (SARPs) of Annex 17 to the Chicago Convention, and provided for in the ICAO Security Manual (Doc 8973). As such, Member Economies are obligated to consider incorporating these techniques in their deployment of AVSEC resources in order to achieve effective security outcomes. Understanding and employing risk analyses and risk management principles will allow for more targeted application and efficient use of resources to achieve the greatest security outcome, and promote the development of innovative approaches to AVSEC. Using these techniques and applying these principles will ensure greater fiscal and resource management and afford the sustainability of operations in light of exponential growth and within an ever-changing threat environment.

   <u>**Relevance – Eligibility and Fund Priorities:**</u> **How does the project a) meet the eligibility criteria and b) support the funding priorities for the nominated fund or sub-fund? Refer to the APEC website.**
Per the current APEC Project Funding Sources, this project falls under the APEC Support Fund – Sub-Fund on Human Security with an emphasis on the funding priorities of Counter-Terrorism and Secure Trade. The project targets Member Economies' capacity to effectively counter terrorist / insider threats to the aviation domain and mitigate vulnerabilities within airport operations. Through the application of risk management principles and the efficient allocation of resources, the project will contribute to the sustainable growth of the aviation sector, encourage the development and implementation of innovative AVSEC policy and programs in furtherance of risk reduction, and leverage best practices from the experience of other Economies. The project will enable Member Economies to comply with international SARPs and enhance their capacity to develop policies and implement measures related to the application of random and unpredictable AVSEC measures (rather than ad hoc application) by learning best practices from others, consistent with sound risk analyses and management principles.

   <u>**Relevance – Capacity Building:**</u> **How will the project build the capacity of APEC member economies? For ASF projects, please identify the APEC developing member economies that will benefit from this project. (Refer to capacity building goals, objectives and principles at Appendix K of the Guidebook.)**
This project directly supports APEC's goal for capacity building while attaining sustainable growth and equitable development in the Asia-Pacific region. As outlined by the "Study on the Costs of Terrorism," which was circulated at the Secure Trade in the APEC Region Conference, a doubling of terrorist incidents in an 11-year period reduced bilateral trade by 6 percent on average. Plainly put, terrorist incidents are detrimental to international trade and, without trade, sustainable growth cannot be achieved. This project is designed to strengthen Member Economies' abilities, skills and technical knowledge of risk mitigation capabilities to improve their institutional processes and thereby reduce their vulnerability to terrorism within the airport operating environment. After the workshop, participants are encouraged to partner with stakeholders to replicate the principles and best practices learned. By strengthening the AVSEC environment, Member Economies will be able to further engage in the regional economy and trade as a whole.

   <u>**Objective:**</u> **State the overall objective of the project in 100 words or less. The objective is the overarching goal of your project, for example, "Our objective is to build the capacity of project participants through workshop and research to better support the X Roadmap, and produce recommendations as a basis for further collaboration to address the APEC-wide issue of…" In the Project Proposal, you will be required to identify a set of measurable project-level <u>outcomes</u>, which if collectively achieved, define whether the project has met the objective stated here. You can identify more than one objective, but avoid confusing the *objective* or goal of the project with the project's *outcomes*.**
The objectives of this project are four-fold: 1) ensure participants understand the international SARPs for the application of random and unpredictable techniques in their AVSEC regime, with a focus on airport-level operations; 2) increase participants' knowledge of the insider threat within the aviation domain, how to address security issues using risk-based approaches, and better leverage existing resources to mitigate that threat; 3) build support for participants to implement randomness and unpredictability within their AVSEC operations through risk analysis principles and risk management to mitigate identified

vulnerabilities; and 4) foster evidence-based risk-informed decision making to support a more robust security culture.

2. **Alignment – APEC: Describe specific APEC priorities, goals, strategies and/or statements that the project supports, and explain how the project will contribute to their achievement.**
This project advances several priorities outlined in the 2017 APEC Transportation Ministerial Meeting, including: **enhancing transportation security** by improving Member Economies' capacity to mitigate vulnerabilities and counter terrorist threats; **engaging with other stakeholders** within APEC (*i.e.*, CTWG, TWG) and international organizations (*i.e.*, ICAO); **encouraging compliance with ICAO SARPs**, such as the implementation of countermeasures using random and unpredictable techniques; and **minimizing security risks to transportation** by encouraging Economies to efficiently utilize the latest security technology and processes to better detect threats.

Alignment – Forum: How does the project align with your forum's work plan/strategic plan?
The Proposed TPTWG Work Plan for 2019 specifically identifies the improvement of transportation systems to ease the flow of goods, people, services and capital in addition to the development of a quality transport vision that enhances accessibility, safety, security, resilience, efficiency, and sustainability as priorities. This project aligns with these specific action items under the Work Plan, because it will enable Member Economies to develop and institute more sustainable AVSEC measures that will not only provide greater facilitation of passengers and goods in air transport, but also allow for sustained high levels of security across the operating system to contribute this quality transport vision.

3. **Methodology: How do you plan to implement the project? Briefly address the following:**

- *Work plan:* **In a simple table, outline the project from start to end. Show key project outputs and activities and associated dates or timelines.**
    - December 2020: Workshop coordination – secure a location, recruit speakers, and issue invitations.
    - January 2021: Curriculum development – using existing material of the Proposing APEC Member Economy, the material will be tailored for context and applicability. This workshop will follow the introductory course "Building a Culture of Security and Countering the Insider Risk."
    - February 2021: Workshop delivery (4 days) – the workshop will be delivered over 4 days, including both classroom style instruction and practical exercises. Deliverable outputs will include: (1) greater understanding of the requirements set forth by the relevant international SARPs; (2) knowledge of best practices and experience of other AVSEC authorities through information sharing and cross-collaboration; and (3) airport and/or domestic level policy and planning guidance, with sample plans developed as part of the practical component (exercise) of the workshop.
    - August 2021: Survey – conduct follow-up survey of workshop participants to measure the level of development and implementation of workshop material.
    - November 2021: Reports – finalize recommendations from the workshop and submit final reports.
- *Beneficiaries:* **Selection criteria for participants, beneficiary profiles (e.g. participants, end users, policy makers, researchers/ analysts, gender) and how they will be engaged.**

    The target audience for this workshop is individuals directly involved in the development and/or operationalization of AVSEC measures and associated policies and regulations within APEC Member Economies, both at the domestic (regulator) level and airport (operator) level. Beneficiary profiles include AVSEC officials, policy makers of Member Economy regulators, and aviation industry stakeholders.

- *Evaluation:* **Outline the indicators which will be used to measure progress towards the project outcomes. Where possible provide indicators which could assess impacts on women.**

    A closing survey will be conducted to determine the quality of the workshop presentation and measure the level of participant understanding of the subject matter pre- and post-workshop delivery. Additionally, a follow-up survey of workshop participants will be conducted approximately 6 months after delivery of the workshop. The survey will measure the level of development and implementation of the workshop material within the participants' respective Economies and determine successes and obstacles. The information gleaned from these surveys will be presented at the next meeting(s) of the TPTWG / Aviation Experts Group, Security Sub-Group following the close of the workshop and follow-up survey.

- *Linkages:* **Information on other APEC and non-APEC stakeholders and how they will be engaged. If and how this proposal builds on (but does not duplicate) the work of other projects. How will this activity promote <u>cross fora collaboration</u>?**

    Since 1994, APEC Leaders have committed to the "Bogor Goals" in the pursuit of free and open trade and investment, which is essential to the growth potential of the region. Just like trade is vital to the growth of the region, AVSEC is vital to the growth of trade. The security of an airport operational environment does not singularly affect the transportation industry, therefore to enhance the depth of discussion beyond the TPTWG, other APEC Working Groups and sub-fora leads will be invited to

participate in this workshop. Collaboration in the design and implementation of this workshop is welcomed from other groups, such as the CTWG and TWG.

A.2 Original Project Proposal
APEC Project Proposal
Please submit through relevant APEC Secretariat Program Director.
Proposals must be no longer than 12 pages, including budget and title page.

Project title and number:	TPT 02 2020A – Building Randomness and Unpredictability into Aviation Security Countermeasure Development and Implementation

Fund Source *(Select one):*

☐ General Project Account (GPA)

☐ Trade and Investment Liberalization and Facilitation Special Account (TILF)

☐ APEC Support Fund (ASF) – General Fund

☒ APEC Support Fund (ASF) – Sub-Fund. <u>You must nominate the sub-fund here:</u> Human Security

APEC forum:	Transportation Working Group (TPTWG), in collaboration with the Counter Terrorism Working Group (CTWG) and Tourism Working Group (TWG)
Proposing APEC economy:	United States of America
Co-sponsoring economies:	Canada, Chinese Taipei, New Zealand, Singapore
Expected Start Date:	October 2020
Project Completion Date: *See Chapter 7 Guidebook on APEC Projects*	December 2021
Project summary: *In 150 words -* • **What is the issue that you will address or examine in your project?** • **Outline the key things your project will do, in terms of what, where, when and with whom.** *(Summary must be no longer than the box provided. Cover sheet must fit on one page)*	This project is designed to enhance Member Economies' risk mitigation capabilities by examining how to best leverage their existing resources to target specific threats and identify vulnerabilities, and to assist aviation security authorities to determine when, where, and how to allocate future resources. The workshop will cover: case studies of programs and best practices; how to create and tailor tactical responses to risk; the benefits of risk analysis; and identification of resources to leverage for risk mitigation. It will also include an overview of the international standards and recommended practices that promote the implementation of countermeasures using random and unpredictable techniques. This project will consist of two two-hour virtual workshop sessions, a three-day in-person workshop with activities and airport site visit, a follow-up survey, and targeted interviews. The virtual workshop is being considered for February 2021 and the in-person workshop for August 2021 in Oregon, United States.

Summary of Proposed Budget (USD) :	**APEC funding**	**Self-funding**	**Total**
	$94,000	$17,000	$111,000

Project Overseer Information and Declaration:

Name: Kalei Cravalho // Eric Yatar // David Mickalonis

Title: Program Analyst // Deputy Director // Branch Manager

Organization: U.S. Transportation Security Administration

Tel: +1-571-227-1149   ***E-mail:*** ghislaine.cravalho@tsa.dhs.gov

_____

Name of Project Overseer / Date

Project Details

Please answer each question succinctly. Suggested section lengths are provided as a guide.
Proposals must be no longer than 12 pages, including budget and title page.

SECTION A: Project Relevance

1. **Relevance – Benefits to region: What problem does the project seek to address? Does it have sustained benefits for more than one economy?**
By introducing the concept of random and unpredictable aviation security (AVSEC) countermeasure implementation, this project seeks to address the risks associated with trusted insiders, complacency in the implementation of security controls and the negative impact this can have on their deterrent effect, and how to efficiently use limited resources to effectively target known threats and mitigate assessed risk. The application of random and unpredictable techniques is promoted in the International Civil Aviation Organization (ICAO) Standards and Recommended Practices (SARPs) of Annex 17 to the Chicago Convention, and provided for in the ICAO Security Manual (Doc 8973). As such, Member Economies are obligated to consider incorporating these techniques in their deployment of aviation security resources in order to achieve effective security outcomes. Understanding and employing risk analyses and risk management principles will allow for more targeted application and efficient use of resources to achieve the greatest security outcome, and promote the development of innovative approaches to aviation security. Using these techniques and applying these principles will ensure greater fiscal and resource management and afford the sustainability of operations in light of exponential growth and within an ever-changing threat environment. The implementation of random and unpredictable AVSEC countermeasures has sustained benefits for every economy, from economies that are in the early stages of developing their AVSEC programs to economies with established AVSEC programs, but it is particularly relevant for those operating with very limited AVSEC resources.

Relevance – Eligibility and Fund Priorities: How does the project a) meet the eligibility criteria and b) support the funding priorities for the nominated fund or sub-fund?
Per the current APEC Project Funding Sources, this project falls under the APEC Support Fund – Sub-Fund on Human Security with an emphasis on the funding priorities of Counter-Terrorism and Secure Trade. The project targets Member Economies' capacity to effectively counter terrorist / insider threats to the aviation domain and mitigate vulnerabilities within airport operations. Through the application of risk management principles and the efficient allocation of resources, the project will contribute to the sustainable growth of the aviation sector, encourage the development and implementation of innovative aviation security policy and programs in furtherance of risk reduction, and leverage best practices from the experience of other economies. The project will enable Member Economies to comply with international standards and recommended practices and enhance their capacity to develop policies and implement measures related to the application of random and unpredictable aviation security measures (rather than ad hoc application) by learning best practices from others, consistent with sound risk analyses and management principles.

Relevance – Capacity Building: How will the project build the capacity of APEC member economies.
This project directly supports APEC's goal for capacity building while attaining sustainable growth and equitable development in the Asia-Pacific region. As outlined by the "Study on the Costs of Terrorism and the Benefits of Cooperating to Combat Terrorism," which was circulated at the Secure Trade in the APEC Region Conference in Bangkok, Thailand, a doubling of terrorist incidents in an 11-year period reduced bilateral trade by 6 percent on average. Plainly put, terrorist incidents are detrimental to international trade and, without trade, sustainable growth cannot be achieved. It is imperative that trade routes remain secure. This project is designed to strengthen Member Economies' abilities, skills, and technical knowledge of risk mitigation capabilities to improve their institutional processes and thereby reduce their vulnerability to terrorism within the aviation operating environment. Risk analysis allows Member Economies to make risk-based, informed decisions that effectively counter the threat and participants will learn ways to leverage existing resources for cost-effective, long-term sustainability. Participants will be given the building blocks for effective implementation of the workshop principles, and are encouraged to partner with stakeholders to replicate the principles and proven best practices learned. Thereby increasing the collective sense of ownership of securing the aviation environment within the economy and the region. By strengthening the aviation environment, Member Economies will be able to further engage in the regional economy and trade as a whole.

2. **Objective: State the overall objective of the project in 100 words or less (refer to your Concept Note).**
The objectives of this project are four-fold: 1) ensure participants understand the international SARPs for the application of random and unpredictable techniques in their AVSEC regime, with a focus on airport-level operations; 2) increase participants' knowledge of the insider threat within the aviation domain, how to address security issues using risk-based approaches, and better leverage existing resources to mitigate that threat; 3) build support for participants to implement randomness and unpredictability within their AVSEC operations through risk analysis principles and risk management to mitigate identified vulnerabilities; and 4) foster evidence-based risk-informed decision making to support a more robust security culture.

3. **Alignment - APEC: Describe specific APEC priorities, goals, strategies and/ or statements that the project supports, and explain how the project will contribute to their achievement.**
This project advances several priorities outlined in the 2017 APEC Transportation Ministerial Meeting, including: **enhancing transportation security** by improving Member Economies' capacity to mitigate vulnerabilities and counter terrorist threats; **engaging with other stakeholders** within APEC (*i.e.*, CTWG, TWG) and international organizations (*i.e.*, ICAO); **encouraging compliance with ICAO SARPs**, such as the implementation of countermeasures using random and unpredictable techniques; and **minimizing security risks to transportation** by encouraging economies to efficiently utilize the latest security technology and processes to better detect threats.

Alignment – Forum: How does the project align with your forum's work plan/ strategic plan?
The Proposed TPTWG Work Plan for 2020 lists priorities to advance APEC's overarching agenda, such as enhancing transportation accessibility, safety, security, resilience, efficiency, and sustainability, as well as encouraging cross-cutting socio-economic improvement. This project aligns with the Proposed TPTWG Work Plan priorities, because it will enable Member Economies to develop and institute more sustainable aviation security measures that will not only provide greater facilitation of passengers and goods in air transport, but also allow for sustained high levels of security across the operating system to contribute this quality transport vision. During the project, participants will learn how to better leverage existing resources to mitigate the insider threat, thereby affording all Member Economies, regardless of their economic means, equal opportunity to develop and implement countermeasures without additional resources. Thus, creating a more secure, efficient, and sustainable transportation environment. Within the Proposed TPTWG Work Plan, relevant APEC fora were identified with which to strengthen cross-fora collaboration, such as the CTWG. The Proposing APEC Economy proactively recognizes transportation as a key sector that impacts many economic initiatives and industries. Therefore, we will collaborate not only with the CTWG, but other fora for which the increase in security and efficiency of the aviation transportation sector would also greatly benefit, such as the TWG.

As outlined in the Proposed TPTWG Work Plan and agreed upon at its 47th Meeting held in Vancouver, Canada in April 2019, TPTWG members will lead in-depth discussions on their respective focused themes. One of the focused themes for the Aviation Expert Group (AEG) is security culture and insider threat, which discussion on the topic was started and the foundation set at the 47th Meeting. This project is the extension of that discussion and will continue to provide Member Economies with building blocks to build a more robust aviation operating environment. This is accomplished through the enhancement of initiatives to combat the insider threat by way of the development and implementation of random and unpredictable countermeasures and the promotion of risk analysis with a security-conscious mindset. A security-conscious mindset is a benefit of security culture and furthers the mantra that security should be everyone's responsibility. This project not only aligns with the Proposed TPTWG Work Plan for 2020, but it also continues to accomplish the TPTWG's priorities by extending the conversation into 2021 and beyond, through the installation of timeless principles to combatting the insider threat and by encouraging participants to implement those principles within their economy.

SECTION B: Project Impact
4. **Outputs: Using a numbered list in chronological sequence, identify the key products or services that will happen during the implementation of your project in support of the outcomes.**
   1. **Virtual Workshop Development and Delivery** – 5 months (October 2020 to February 2021)
      The virtual workshop will be comprised of two two-hour instructional sessions. Development of both the virtual and in-person workshop curriculums will be done in-house by the Proposing APEC Economy where existing materials (*i.e.*, training materials on security culture, insider risk, random and unpredictable countermeasures, etc.) will be tailored to this project's objectives and for context and applicability to participants.

      During the development phases, the workshop agenda, presentations, and facilitator guide will be drafted and structured into modules that allow flexibility for method of instruction. For the virtual workshop, modules are likely to be in presentation-style format with facilitator prompts to encourage participant engagement. The virtual workshop modules are expected to address:
      - Overview of the evolving terrorist threat to international civil aviation.
      - Risk as an element of Security Culture in the aviation security domain.
      - Discussion of the unique risk associated with trusted insiders, complacency in the implementation of security controls and the negative effects this can have on their deterrent value.
      - International standards and recommended practices related to the application of random and unpredictable techniques.

      During the workshops, participants will be introduced to the concepts of risk and its three components: threat, vulnerability, and consequence. The application of risk analysis and risk-informed decision making will shape all workshop content. The experts will further guide participants through discussions on the unique threat posed by aviation insiders, the establishment of baseline security measures in accordance with international standards, designing and implementing random security, and related subject matter.

2. **In-Person Workshop Development and Delivery** – 11 months (October 2020 to August 2021)
The in-person workshop will be three days with activities and an airport site visit, Portland International Airport is considered for the site visit. For the in-person workshop, modules are likely to be in presentation-style format with facilitator prompts to encourage participant engagement and include breakout group format for group work or practical exercises. The in-person workshop modules are practical applications of the lessons learned during the virtual workshop and are expected to address:
   - Employing risk analyses and management principles for the targeted application of countermeasures.
   - Methodologies for establishing baseline aviation security measures.
   - Implementing random and unpredictable aviation security countermeasures.
   - Using limited resources to effectively target known threats and mitigate assessed risk.

   Practical exercises will include conducting observations at an operating airport, developing proposed random measures, resourcing and coordinating those measures, and communicating with appropriate partners and the public. Participant manuals that address necessary factors will be provided to participants to guide their design of proposed action measures, which can then be used by the participant when they return to their agency or airport.

3. **Best Practices Guidelines** – 10 months (February 2021 to November 2021)
Starting during the virtual workshop and continuing post-in-person workshop, participants will contribute inputs to the Best Practices Guidelines, which will be compiled and later disseminated to workshop participants. The Best Practices Guidelines will be a 12-15-page document that includes a cover page, table of contents, summary of random and unpredictable countermeasure principles, and participant inputs. Refer to Question 7: Dissemination for dissemination plans of the Best Practices Guidelines.

4. **Workshop Summary** – 10 months (February 2021 to November 2021)
The Workshop Summary will be an 8-12-page document that includes a cover page, table of contents, introduction to the project, list of participating economies and agencies, brief summary of course modules, summary of participant feedback, lessons learned, and conclusions and recommendations from both the virtual and in-person workshops. Refer to Question 7: Dissemination for dissemination plans of the Workshop Summary.

5. **Outcomes: Using a numbered list, describe the specific impacts, changes or benefits that the project is expected to deliver, which directly support the project objective (above).**
   1. Participants demonstrated an expansion in their knowledge of risk and its components, the unique risks posed by aviation insiders, the root causes of vulnerabilities, and the policy implications therein. Participants returned to their economies with the skills necessary to apply risk analysis principles and risk-based approaches to security issues. Recalling lessons learned and best practices gleaned from peers, participants developed an action plan to more effectively leverage limited financial, human, and other resources in random and unpredictable ways to more effectively mitigate the risk, within their respective economy.

   2. With the increased understanding of the insider threat and the risk associated with that threat, regulatory requirements and aviation security operations are formulated in a way that produces more cost effective security operations, as well as more sound and transparent policy decision making. Regulatory and operational decision making is transformed to incorporate a process informed by risk and evidence-based decision making. Aviation policies and procedures are enhanced by the use of risk analysis and risk management principles that guide programs and their operational implementation, and that are cost-effective and operationally efficient. Blanket and basic security countermeasures that are costly and do not appropriately target the threat are replaced by results-oriented and risk-based countermeasures.

   3. Risk-based random and unpredictable countermeasures are further developed and implemented within the aviation environment. This is indicated by procedural and operational changes, where adherence to related international standards and recommended practices is increased. Security regulators and operators are engaged along with stakeholders to work collaboratively to create an aviation environment that is more secure and supported by robust, risk-informed processes and procedures.

6. **Beneficiaries: Who are the direct project participants and users of the outputs?**
The target audience for the workshops (selection criteria) is individuals directly involved in the development and/or operationalization of aviation security measures and associated policies, programs, and regulations within APEC Member Economies, both at the domestic (regulator) level and airport (operator) level. During the workshops, participants will create an action plan to bring lessons learned back to their economy and implement the next steps outlined. It is imperative to have a good mix between regulator and operator level participants as the successful development and implementation of risk-based countermeasures requires change in the

institutional mindset throughout the aviation environment, including at the regulator and operator levels. Both need to work cohesively to apply project principles and achieve project outcomes.

Beneficiary profiles include Member Economy aviation security officials, policy makers and regulators, as well as aviation industry stakeholders responsible for aviation security. Individuals will be invited to participate from each of the 21 APEC Member Economies and solicited through TPTWG messaging, in consultation with the CTWG and TWG. In accordance with the Malaysian Host Year's priorities and Proposed TPTWG Work Plan for 2020, this project upholds the initiative to encourage Women in Transport. To this end, the Proposing APEC Economy aims to ensure the participant invitee list includes a healthy mix of women and men.

Workshop participants are not the only beneficiaries for this project. Post-workshop, participants are encouraged to partner with stakeholders within their economy's aviation environment to enact the action plan formed and apply the lessons learned. Therefore, workshop principles will be replicated and implemented to the benefit of a stronger global aviation ecosystem. Regardless of who participates in the workshops, all APEC Member Economies will have access to the workshop principles and deliverables to enact within their own economy.

7. **Dissemination: Describe plans to disseminate results and/or outputs of the project.**
The Best Practices Guidelines and the Workshop Summary will be published and made available electronically via ACS and other APEC document databases for briefing and distribution during the TPTWG, CTWG, and TWG meetings following the completion of the project, to encourage all APEC Member Economies to consider the development and implementation of random and unpredictable countermeasures. The POs will then work with the APEC Secretariat to disseminate the publications to the wider APEC audience, for example posting on the APEC website. Electronic distribution is the preferred method of dissemination; therefore, the Best Practices Guidelines and the Workshop Summary will not be printed. The POs will adhere to the requirements in the Guidebook on APEC Projects, the APEC Publications Guidelines, and the APEC Logo Guidelines for these publications, to include: presenting at a level of English fit for publication and adhering to APEC nomenclature rules.

The Proposing APEC Economy will share the project results outside of APEC, but has no intention to sell it. In addition to briefing the project's outputs within APEC, the Best Practices Guidelines and the Workshop Summary may be packaged for briefing and dissemination to international aviation security organizations, such as ICAO and its Aviation Security Panel of Experts. This may be done in an electronic format and will therefore not require additional funds from APEC to accomplish (refer to Section D: Project Sustainability for additional information).

8. **Gender: What steps will the project take to ensure the participation and engagement of both men and women in project activities? How do the project outcomes and the project objective benefit women**
The Proposing APEC Economy does not discriminate and will invite aviation security experts to contribute on the project regardless of gender. The POs will ensure both women and men are invited to, engaged and participate in all activities of this project. In regards to the inclusion of women, the Proposing APEC Economy will target participant engagement of at least 30% of women between each of the two categories: 1) participants, and 2) experts and other contributors. The POs are committed to collecting sex disaggregated data for all participants and experts (not only those funded by APEC) during the workshops. This data will be included when submitting a Completion Report to the Secretariat upon completion of the project, as well as providing guidance to future POs on their own gender parity targets.

Project outcomes and objectives benefit the global aviation ecosystem as a whole, which will include benefits for women in transport. Specifically, this project will promote women's economic empowerment through the pillars on skills and capacity building, and leadership, voice, and agency. The workshops and its activities will teach women participants the technical principles of risk analyses and risk management, and prepare them for successful application of these principles within their economy's AVSEC operations. Additionally, as AVSEC professionals and leaders, women will be invited to contribute in all aspects of the project from the project coordination, workshop development and delivery, follow-up activities, and project reporting.

SECTION C: Project Effectiveness
9. **Work plan: Produce a project plan in a table with three columns titled 'Time', 'Tasks' and 'Deliverables' which indicate timelines, outputs and activities, and supporting tasks.**

Time	Tasks	Deliverables
October 2020	• Project start. • The Proposing APEC Economy will organize all project details in-house. • The POs will establish working procedures and division of labor with the project's collaborating stakeholders, such as economy co-sponsors and collaborating APEC working groups.	Definition of Groundwork and Outline of Responsibilities for Project

November 2020 – January 2021	• The POs will finalize the virtual workshop logistics.	Preparation and Coordination of Project
	• In coordination with collaborating stakeholders, the POs will create the list of workshop invitees.	
	• Working with the APEC Secretariat and Heads of Delegation for the TPTWG, the POs will issue invitations to the list of workshop invitees.	
	• At least two months before the virtual workshop (December 2020), the POs will send the General Information Circular for the virtual workshop.	Send General Information Circular
	• In accordance with the APEC Projects Guidebook, the POs will keep the Secretariat, via the Program Director (PD), informed of project implementation progress. This will include but is not limited to funding requirement notifications.	
	• In coordination with collaborating stakeholders, the POs will develop both workshops' curriculums.	Development of Workshop Curriculums
	• In coordination with collaborating stakeholders, the POs will recruit workshop experts and facilitate creation of the applied components (*e.g.*, activities, practical exercises, plan development).	
	• The POs will pilot the workshops to an audience of the Proposing APEC Economy subject matter experts and make necessary adjustments based on expert feedback.	
	• In coordination with the PD, the POs will create workshop evaluation instruments (*i.e.*, questionnaires, survey, and targeted interview).	Development of Workshop Evaluation Instruments
February 2021	• The Proposing APEC Economy will host the virtual workshop and facilitate the training delivery.	Delivery of Virtual Workshop
	• During workshop delivery, experts will solicit best practices from participants and the POs will compile the initial input.	
	• The POs will collect the pre-workshop and post-workshop questionnaires.	
	• The POs will use the Event Attendance List template to collect participant and expert data, and adhere to the necessary requirements regarding data collection and the template.	Use of Event Attendance List
March – May 2021	• The POs will evaluate the data collected by the virtual workshop questionnaires and include findings in relevant summaries.	Evaluation of Virtual Workshop
	• In collaboration with the experts, the POs will summarize virtual workshop discussions and presentations.	
	• The POs will complete and submit the Monitoring Report to the PD (due by 1 April 2021).	Submission of Monitoring Report
	• In accordance with the APEC Projects Guidebook, the POs will keep the PD informed of project implementation progress.	
	• The Proposing APEC Economy will finalize the in-person workshop logistics, including consideration to shift to a virtual workshop, if necessary (by May 2021).	Preparation and Coordination of In-Person Workshop
June – July 2021	• At least two months before the in-person workshop (June 2020), the POs will send the General Information Circular for the in-person workshop.	Send General Information Circular
	• To travel-eligible economy participants and experts, the POs will provide specific guidance on travel limitations and funding reimbursement in accordance with APEC guidelines.	

	• In accordance with the APEC Projects Guidebook, the POs will keep the PD informed of project implementation progress.	
August 2021	• The Proposing APEC Economy will host the in-person workshop and facilitate the training delivery. • During workshop delivery, experts will solicit best practices from participants. • The POs will collect the pre-workshop and post-workshop questionnaires. • The POs will use the Event Attendance List template to collect participant and expert data, and adhere to the necessary requirements regarding data collection and the template.	Delivery of In-Person Workshop Use of Event Attendance List
September – November 2021	• September 2021 (one month post-workshop): the POs will send the follow-up survey and continue to solicit best practices input. • October 2021 (two months post-workshop): the POs will follow-up to ensure receipt of all survey responses. In coordination with collaborating stakeholders, the POs will also select participants and conduct the targeted interviews. • The POs will evaluate the data collected by the follow-up survey and targeted interviews, and include the findings in relevant summaries. • In coordination with collaborating stakeholders, the POs will identify and finalize recommendations from the workshop. • The POs will submit the Best Practices Guidelines and Workshop Summary for APEC publication (projected by 1 November 2021). • The POs will resolve all project related payments and reimbursement claims, if applicable, and submit financial documentary requirements to the Secretariat via the PD (due at least 6 weeks before project completion).	Execution of Follow-Up Activities Continuation of Progress Monitoring Finalization of Reports Submission of Best Practices Guidelines and Workshop Summary Submission of Financial Documentary Requirements
December 2021	• Project completion.	
February 2022	• The POs will complete and submit the Completion Report of the project to the PD (due within 2 months after project completion).	Submission of Completion Report
6-12 months after project completion	• The POs will participate in the Long Term Evaluation of APEC Projects conducted by the Secretariat.	Post-Project Completion Activity

10. **Risks: What risks could impact project implementation and how will they be managed?**
Due to the current global climate, the greatest risk that could and has impacted this project's implementation is the COVID-19 pandemic. Due to the COVID-19 impact on global health, international travel, and the subsequent application of travel restrictions, the Proposing APEC Economy has shifted this project's in-person workshop to August 2021 and added a virtual workshop in February 2021. With the addition of a virtual workshop, the noted risk of APEC projects failing to engage more than half of the anticipated number of funded-participants is mitigated, because the virtual format allows greater opportunity for participation without need for travel or funding. As well, in addition to the usual nomination process, the Proposing APEC Economy will use the AEG and AEG-Security fora to solicit participation, and will also conduct direct outreach to their AVSEC contacts within APEC economies to promote participation in this workshop.

For risk of economies not applying knowledge learned or adopting recommendations from the project, refer to Section D: Project Sustainability for additional information on support and future projects.

11. **Monitoring and Evaluation: The project's success will be measured by the extent to which it has delivered all its planned outcomes, in support of the overall objective of the project. Describe the measures or indicators will you use to monitor the progress of your project, and evaluate if it has delivered all the outcomes.**

This project will primarily seek to measure change in the participants' familiarity with key concepts, terms, and practices related to random and unpredictable aviation security measures in aviation operations, the impact of the workshop, and the development and dissemination of a Best Practices Guidelines. The primary methods of evaluation will include pre- and post-workshop questionnaires, a follow-up survey, and targeted interviews.

Outputs	Indicators

Virtual Workshop Development and Delivery	• Recruit experts
	  o Target: at least two experts
	• Issue invitations and receive RSVPs
	  o Target: two participants from each APEC Member Economy with a mix of regulator and operator level, and encouraging women's participation
	• Create workshop materials
	  o Target: agenda, presentations, facilitator guides, and participant manuals
	• Create workshop evaluation instruments that will collect sex-disaggregated data
	  o Target: one pre- and one post-workshop questionnaire per workshop, one follow-up survey, and targeted interview outline
	• Host virtual workshop and facilitate training
	  o Target: at least 30 participants
	• Begin best practices collection during virtual workshop
	  o Target: at least two participant inputs collected
	• Collect data from pre- and post-workshop questionnaires
	  o Target: at least 90% completion by participants

In-Person Workshop Development and Delivery	• Recruit experts
	  o Target: at least four experts, with at least two of them women
	• Issue invitations and receive RSVPs
	  o Target: the same participants from the virtual workshop
	• Create workshop materials
	  o Target: agenda, presentations, facilitator guides, and participant manuals
	• Host in-person workshop and facilitate training
	  o Target: at least 30 participants
	• Begin best practices collection during the in-person workshop
	  o Target: at least four participant inputs collected
	• Collect data from pre- and post-workshop questionnaires
	• Target: at least 90% completion by participants

Best Practices Guidelines	• Receive input for inclusion in the Best Practices Guidelines o Target: at least 30% response
Workshop Summary	• Summarize workshop discussions and presentations o Target: first draft by three months after virtual workshop delivery

Outcomes	Indicators

Participants have expanded their knowledge on workshop principles	• Delivery of workshops
	  o Target: modules presented include an overview of the evolving threat to civil aviation, unique threats associated with trusted insiders, employment of risk analysis and risk management principles, using limited resources to effectively target known threats and mitigate assessed risk
	• Evaluation of data from the workshop evaluation instruments
	  o Target: at least 50% increase in knowledge of workshop principles

Behavior is changed to include use of evidence-based, risk-informed decision making	• Evaluation of responses to the follow-up survey
	  o Target: at least 30% report change in behavior in-line with workshop principles
	• Evaluation of responses to the targeted interview
	  o Target: at least 40% report change in behavior in-line with workshop principles

Risk-based random and unpredictable countermeasures are further developed and implemented	• Delivery of workshops
	  o Target: modules presented include related international standards and recommended practices, and examples of random and unpredictable countermeasures
	• Evaluation of responses to the follow-up survey
	  o Target: at least 30% report the start or increase of activities directly related to workshop principles
	• Evaluation of responses to the targeted interview
	  o Target: at least 40% report the active development and/or implementation of countermeasures

12. **Linkages: Describe the involvement of other APEC fora, and other relevant organizations.**
Since 1994, APEC Leaders have committed to the "Bogor Goals" in the pursuit of free and open trade and investment, which is essential to the growth potential of the region. Just like trade is vital to the growth of the region, aviation security is vital to the growth of trade. The security of an airport operational environment does not singularly affect the transportation industry, therefore to enhance the depth of discussion beyond the TPTWG, other APEC Working Groups and sub-fora leads will be invited to participate in the workshops. Collaboration in the design and implementation of the workshops are welcomed from other groups within APEC, such as the CTWG and TWG. In addition to relevant groups within APEC, workshop materials will be shared with subject matter experts from ICAO AVSEC Panel's Working Groups on Training and Guidance Material in an effort to enhance and expand APEC deliverables to other international organizations. After the conclusion of the project, the Proposing APEC Economy will share the Best Practices Guidelines and Workshop Summary with other international aviation organizations to promote the work within APEC and encourage others to conduct similar projects (refer to Section D: Project Sustainability).

This project is a continuation of the conversation started at the 47th TPTWG Meeting in April 2019, regarding the AEG focused theme of security culture and insider threat, and it will expand on the topic of insider threat and the risk associated with that threat. To the POs' knowledge, no international organizations are currently conducting a project like this, including within APEC, that focuses on the principles of risk analysis and risk management with regard to the development and implementation of random and unpredictable countermeasures. Nevertheless, this project has implications for continued development throughout the global aviation ecosystem. APEC is the best organization to support and advance this project because its Member Economies are diverse in their level of implementation of international standards and can provide illustrative case studies on the development and implementation of random and continuous countermeasures in a variety of operational contexts.

SECTION D: Project Sustainability
13. **Sustainability: Describe how the project will continue to have impact after the APEC funding is finished.**
Support within the aviation ecosystem
Achievement of the project outcomes includes the integration, institution, and implementation of the project principles (*i.e.*, risk analyses, random and unpredictable countermeasures) into the domestic program policy framework, the domestic security program, and the aviation operator's procedures, respectively. At that time, workshop principles are sustained due to its perpetuation in the domestic programs and procedures. Knowing that changes to policy are often lengthy endeavors and may take longer than this project's one-year timeline to achieve, participants are encouraged to consult the Best Practices Guidelines and engage with other workshop participants to build a supportive aviation security network. This project is designed to give participants the building blocks for successful completion of the project outcomes; however, participants must have the will to actually complete them. The Proposing APEC Economy will continue to provide support to select participants through initiatives in future projects and as needed and requested by project participants.

Future projects
As a continuation of this project, and to mitigate the risk of economies failing to apply knowledge learned or adopt recommendations from the project as noted in Question 10: Risk, the Proposing APEC Economy will use the AEG and AEG-Security forums to solicit economy reports on implementation of their action plans developed during the workshops, which will continue the conversation and build in participant accountability. The Proposing APEC Economy will also consider conducting observation visits to select economies with the agreement of the host government and based on participants' answers to the targeted interview. The intent of the observations is to measure the implementation and success of the project principles within the economy's policy and infrastructure, and to provide additional support with and economy-specific guidance on the development and implementation of random and unpredictable countermeasures. These observations will be evaluated and reported to APEC at future TPTWG meetings.

In an effort to further the conversation on threats to the aviation ecosystem, the Proposing APEC Economy will consider conducting future projects on topics such as Security Culture, Use of Advance Passenger Information (API) and Passenger Name Record (PNR) Data for AVSEC Purposes, and/or AVSEC Technology Acquisition and Deployment Lifecycle. These topics are vital to building a robust aviation ecosystem and promoting the more efficient use of resources for better and more effective targeting of threat and risk-mitigation activities within the aviation domain.

Additionally, in light of the constantly evolving aviation threat environment, the Proposing APEC Economy will consider updating this project based on the post-workshop recommendations and conducting the project again within 1-2 years' time after its completion. The updated project could be conducted within APEC or other international aviation security organizations, such as ICAO and/or the Association of South East Asian Nations (ASEAN). Conducting this project again will perpetuate the knowledge that random and unpredictable

countermeasures and risk analysis principles are important factors in aviation security. This will also allow other economies, perhaps from other regions, to be engaged in this discussion.

Reporting results
After the Best Practices Guidelines and Workshop Summary have been endorsed by the APEC TPTWG and the collaborating stakeholder working groups, the Proposing APEC Economy will share them with ICAO through the appropriate forum, such as ICAO's AVSEC Panel, Aviation Security Symposium, and/or the Aviation Security High-Level Conference. This will inform ICAO on the work being conducted within APEC Member Economies on the development and implementation of random and unpredictable countermeasures and will promote the Best Practices Guidelines for global dissemination and consideration. The Proposing APEC Economy will encourage ICAO to continue the project and further promote implementation of the project principles with the aim to influence global standards. With the resources of ICAO supporting the project, the Universal Security Audit Programme - Continuous Monitoring Approach and/or regional offices (*i.e.*, Asia and Pacific Office in Bangkok, Thailand and South American Office in Lima, Peru) could be utilized to ensure project principle implementation and future project actions are conducted and being tracked. In sum, the continuation of this project would result in the emphasis on the interconnectedness of aviation across economies globally and highlight APEC as a leader in global best practices and international standards.

14. **Project Overseers: Who will manage the project?**
This project will be overseen by the U.S. Transportation Security Administration, represented by:

Name:	Kalei Cravalho	Eric Yatar	David Mickalonis
Title:	Program Analyst	Deputy Director	Branch Manager
Tel:	+1-571-227-1149	+1-571-227-2699	+1-571-227-1277
Email:	ghislaine.cravalho@tsa.dhs.gov	eric.yatar@tsa.dhs.gov	david.mickalonis@tsa.dhs.gov

Collectively, the POs have a wealth of knowledge and expertise in key focus areas of this project, including extensive experience in: leading, managing, developing, and delivering international training and technical assistance; developing and implementing international transportation and aviation security law and policy; conducting and managing security operations, including security screening operations, applying random and unpredictable security countermeasures within the aviation domain; working bi-laterally and multilateral with APEC Member Economies; and engaging with industry stakeholders.

SECTION E: Project Efficiency

15. **Budget:** **Complete the budget and budget notes for the project in the template below.**

APEC Project Itemized Budget
Please consult the eligible expenses in the *Guidebook on APEC Projects*

All Figures in USD	# of Units	Unit Rate	APEC Funding	Self-Funding	Notes
Direct Labour					
Speaker's honorarium (*government officials ineligible)*	(# of speakers)	0	0	0	This project will not have speaker honorarium.
Short-term clerical fees (please provide details of scope of work and deliverables in Budget Note 1 - Direct Labour)	(# of hours)	160 hours	0	7,640	Any short-term clerical fees will be self-funded by the Proposing APEC Economy.
Contractor fees (contractors Secretary's fees to be included in cost and packaged together)	(# of hours)	0	0	0	This project will not employ contractors as work will be completed in-house.
Travel (Speaker, Experts, Researchers)					
Per diem (incl. accommodation and "75% additional payment")	(# of persons and days)	8 persons, 4.75 days	6,080	6,080	APEC funding will cover travel for four experts and the Proposing APEC Economy self-funding will cover travel for an additional four experts.
Airfare	(# of persons and trips)	8 persons, round trip	4,280	3,280	Same as above. Airfare was researched based on flights from Washington, DC.
Travel for Participants (from travel-eligible economies only. Active participants only)					
Per diem (incl. accommodations and "75% additional payment")	(# of persons and days)	22 persons, 4.75 days	33,440	0	APEC funding will cover travel for 2 participants each from the 11 APEC travel-eligible economies. United Nations (UN) per diem of $320 x 4.75 days x 22 persons (2 participants from 11 travel-eligible economies).
Airfare (*restricted economy class)*	(# of persons and trips)	22 persons, round trip	33,200	0	Same as above. Airfare varies by location (travel-eligible economy departure point) therefore flight costs were researched based on the most direct and economical flight.

All Figures in USD	# of Units	Unit Rate	APEC Funding	Self-Funding	Notes
Other items					
Publication/distribution of report	(# of copies)	N/A	0	0	Refer to Question 7: Dissemination.
Specialized equipment or materials (*please describe*)	(type, #, and # of days)	Audio-visual rental, 3 days	500	0	Audio-visual equipment rental for workshop to include projector and screen, microphone and sound system, etc.
Photocopying	(# of copies)	75 copies of each material	750	0	Printing of workshop materials to include participant manuals and workshop questionnaires.
Communications (telephone, fax, mail, courier)			750	0	Shipping fees for workshop materials.
Hosting (provide breakdown, e.g., room rental, stationery)	(units as appropriate)	3 days	15,000	0	Hosting costs to include workshop room rental, table and chair set-up, stationary, etc.
Total:			94,000	17,000	

Budget Note 1: Direct Labour: Provide information for APEC-funded positions including general duties, total hours and who will be contracted, if known.
All labor will be conducted in-house and any costs will be borne by the Proposing APEC Economy. Therefore, no direct labor costs will be funded by APEC for this project.

Budget Note 2: Waivers: Provide details of any requests for waivers from the normal APEC financial rules, with justifications in the notes column of the budget table, or below if the waiver requires a detailed explanation.
At this time, no waivers are requested for this project. However, should there be any changes to project implementation, the POs will work with the PD, APEC Secretariat, and collaborating stakeholders for any adjustments and waivers.

A.3 Final Approved Project Design Amendment and Extension Form

APEC Project Design Amendment and Extension Form

Projects are expected to follow the timelines, budgets, methodologies and approaches set out in your Project Proposal. Amendments and extensions are considered by the Secretariat on a case-by-case basis and where required, by BMC. Consult Chapter 2 and 10 of the Guidebook on APEC Projects for more information. Please complete this form for all design amendment and extension requests, and use the APEC Project Budget Amendment Form where your design amendment request impacts the budget of your project. Send the form(s) to your Program Director for approval.

Please **start** by describing your project:

Project Number:	TPT 02 2020A
Project Title:	Building Randomness and Unpredictability into Aviation Security Countermeasure Development and Implementation
Proposing Forum:	Transportation Working Group (TPTWG)
Project Overseer and Organisation:	Kalei Hall / Eric Yatar / David Mickalonis, U.S. Transportation Security Administration (TSA)
Proposing Economy:	United States
Start Date:	October 2020
Original End Date as stated in Project Proposal:	December 2021
Current End Date/s (if you have extended before)	December 2022

Your Proposed Design Amendment

*If you need to do a minor re-programming of funds but the outputs and activities in your Project Proposal won't be amended, you **only need to complete the APEC Project Budget Amendment Form.** Otherwise, please continue to complete all the Parts of this form that apply to your request.*

A. Extension request (must request at least 6 weeks in advance of end-date)
If you need more time to complete your project, please identify a new project end date: N/A, same as approved in PDAE2 (December 2022)

Explain briefly why you require an extension. Depending on the situation, you may need to complete all or some of **Parts B to E** as well:

This request is to note a project design amendment and not to request a time extension for the project.

Due to continued international travel restrictions related to the COVID-19 pandemic, the Project Overseers are unable to organize Part 2 of the Project TPT 02 2020A as an in-person workshop. The current requirements to travel to the United States is: 1) vaccination and 2) negative PCR test result. The Project Overseers have consulted with the APEC Secretariat, who advised that APEC funds cannot be used to reimburse travel-eligible economy participants for the PCR test. The additional cost of one or more PCR tests to travel to and from their economies, plus potential additional requirements participants might face when returning to their home economy (to include potential quarantine requirements should they test positive for COVID-19 during the workshop or either before or immediately upon their return to their home economy), may put undue burden on project participants that would prohibit their full participation. Accordingly, the Project Overseers are requesting to shift the Part 2 workshop, from an in-person workshop to a virtual workshop. This shift will allow the Project Overseers to deliver the workshop in June 2022, as approved from the PDAE 2 request.

Switching Part 2 to a virtual format will require a change in project outcomes, as not all outcomes will be realized via virtual delivery. Specifically, the airport site visit and the interactive group activities, unfortunately, cannot be conducted virtually. Instead, the virtual workshop will focus on providing an overview of the implementation plan process, as well as showcase two economies as they go through the implementation plan exercise 'live' for participants to observe and understand what needs to be done when they go through the process themselves (post-workshop, as appropriate).

Describe how any potential or real risks will be managed to ensure further extensions will not be needed:

N/A, a time extension is not requested.

B. Deleted outputs

Describe any outputs that are part of your Project Proposal but you no longer intend to deliver. Please provide reasons why:

Describe all original Outputs	Which outputs have been delivered, and are still on-track for delivery	Identify which outputs will be deleted or discontinued	Why will the output be deleted or discontinued?
N/A			

In light of the amendments described above, explain how you will ensure the project will still achieve the outcomes and objectives identified in your Project Proposal. How will the amendment impact any project beneficiaries?

   N/A
_____

Explain how the sustainability of the project will be maintained, and describe any changes to the way you intend to monitor and evaluate the project.
   N/A
_____

C. Additional or amended outputs

Describe any new outputs, or any changes within existing outputs, that you are proposing.

Describe all original outputs	Describe how the output will be changed	Describe any additional outputs	Why do you need to amend the output? Why do you need to add the extra output?
1. Virtual Workshop Development and Delivery	N/A		
2. **Virtual** Workshop Development and Delivery	June 2022		**Output amended due to continued international travel restrictions related to the COVID-19 pandemic. Workshop delivery will be amended to a virtual delivery, and the airport site visit and interactive group activity will be eliminated.**
3. Best Practices Guidelines	October 2022		
4. Workshop Summary	October 2022		

Explain how the amended outputs will continue to support the outcomes and objectives identified in the Project Proposal, and whether any project beneficiaries are impacted. For new outputs, explain specifically how these new outputs are consistent with the outcomes and objectives in the Project Proposal. Identify the beneficiaries.

   This PDAE is essentially a request to adjust the Part 2 workshop to a virtual delivery; however, not all outcomes and objectives would be realized due to the virtual format (i.e., airport site visit and interactive group activities). Project beneficiaries may be slightly impacted because the Project Overseers do believe the airport site visit and interactive group activities would greatly further participant understanding of the project principles. However, despite the loss of those activities, the Project Overseers are adjusting the Part 2 workshop and post-workshop activities with the remaining project outcomes in mind, and to provide participants additional support to understand the workshop principles through the targeted interviews activity.

If you are proposing to undertake an additional output **after** the original Project Proposal workplan has been completed, or you are close to completing the workplan and wish to fund an additional output, please explain why it is critical to undertake the additional activity.

   N/A

Explain how the sustainability of the project will be maintained, and describe any changes to the way you intend to monitor and evaluate the project.

   The sustainability of the project, as well as the monitoring and evaluation, aspects will not change from what was originally envisaged in the Project Proposal.
_____

D. Other changes to project activities or contracted milestones

If you are proposing changes to any other aspect of the workplan, including changes to contractor milestones (such as new milestone dates) please describe them here. Provide reasons for change:

Describe original activity or milestone	Describe change to activity or milestone	Reasons for change
1. N/A	August 2021 – Mini Webinar (COMPLETED)	PDAE1 added a one-day, two-hour virtual webinar in August 2021 to bridge the Part 1 and Part 2 workshops
2. N/A	February 2022 – Briefing document to participants (COMPLETED)	PDAE2 added a briefing document that highlighted key themes and best practices, as well as resources, that arose from the project so far.

Please explain how the changes will still support the delivery of the outcomes and objectives identified in the Project Proposal.

The Project Overseers have added these activities as a way to bridge the gap and continue the conversation amongst participants on the project's key themes. These activities have added additional layers to the project while participants anticipate the delivery of Part 2.

E. For all design amendments

It is useful to illustrate your revised workplan or design in a timeline format. Please complete the following, or provide an amended version of the one you provided in your Project Proposal.

***NOTE: items in purple font demonstrate changes from the original PDAE submission (PDAE2 request). Items in red font demonstrate changes from PDAE2 submission (PDAE3 request).**

Previous		New		
Time	Deliverable	Time	Task	Deliverable
October 2020	*Definition of Groundwork and Outline of Responsibilities for Project*	October 2020	• Project start. • The Proposing APEC Economy will organize all project details in-house. • The POs will establish working procedures and division of labor with the project's collaborating stakeholders, such as economy co-sponsors and collaborating APEC working groups.	*Definition of Groundwork and Outline of Responsibilities for Project*
November 2020 – January 2021	*Preparation and Coordination of Project* *Send General Information Circular*	November 2020 – January 2021	• The POs will finalize the virtual workshop logistics. • In coordination with collaborating stakeholders, the POs will create the list of workshop invitees. • Working with the APEC Secretariat and Heads of Delegation for the TPTWG, the POs will issue invitations to the list of workshop invitees. • At least two months before the virtual workshop (December 2020), the POs will send the General Information Circular for the virtual workshop. • In accordance with the APEC Projects Guidebook, the POs will keep the Secretariat, via the Program Director (PD), informed of project implementation progress. This will include	*Preparation and Coordination of Project* *Send General Information Circular*

Previous		New		
Time	*Deliverable*	*Time*	*Task*	*Deliverable*
	Development of Workshop Curriculums		but is not limited to funding requirement notifications. • In coordination with collaborating stakeholders, the POs will develop both workshops' curriculums. • In coordination with collaborating stakeholders, the POs will recruit workshop experts and facilitate creation of the applied components (e.g., activities, practical exercises, plan development). • The POs will pilot the workshops to an audience of the Proposing APEC Economy subject matter experts and make necessary adjustments based on expert feedback. • In coordination with the PD, the POs will create workshop evaluation instruments (i.e., questionnaires, survey, and targeted interview).	***Development of Workshop Curriculums***
	Development of Workshop Evaluation Instruments			***Development of Workshop Evaluation Instruments***
February 2021	Delivery of Virtual Workshop Use of Event Attendance List	*February 2021*	• The Proposing APEC Economy will host the virtual workshop and facilitate the training delivery. • During workshop delivery, experts will solicit best practices from participants and the POs will compile the initial input. • The POs will collect the pre-workshop and post-workshop questionnaires. • The POs will use the Event Attendance List template to collect participant and expert data, and adhere to the necessary requirements regarding data collection and the template.	Delivery of Virtual Workshop Use of Event Attendance List
March – May 2021	***Evaluation of Virtual Workshop*** ***Submission of Monitoring Report***	*March – May 2021*	• The POs will evaluate the data collected by the virtual workshop questionnaires and include findings in relevant summaries. • In collaboration with the experts, the POs will summarize virtual workshop discussions and presentations. • The POs will complete and submit the Monitoring Report to the PD (due by 1 April 2021). • In accordance with the APEC Projects Guidebook,	***Evaluation of Virtual Workshop*** ***Submission of Monitoring Report***

Previous		New		
Time	Deliverable	Time	Task	Deliverable
	Preparation and Coordination of In-Person Workshop		the POs will keep the PD informed of project implementation progress.	
		June – July 2021	• The POs will finalize the virtual webinar logistics.	*Preparation and Coordination of Webinar*
		August 2021	• Delivery of one day, two-hour webinar • The POs will use the Event Attendance List template to collect participant and expert data, and adhere to the necessary requirements regarding data collection and the template.	Delivery of Webinar Use of Event Attendance List
		September – November 2021	• The Project Overseers considered logistics of hosting an in-person workshop in the current climate and submitted PDAE request form.	*Submission of PDAE request form*
		December 2021 – February 2022	• Delivery of a briefing document highlighting best practices and continuing the conversation on key themes of the project.	*Delivery of briefing document*
June – July 2021	*Send General Information Circular*	*March – May 2022*	• The Proposing APEC Economy will finalize the virtual workshop logistics • At least two months before the in-person workshop (April 2022), the POs will send the General Information Circular for the virtual workshop. • In accordance with the APEC Projects Guidebook, the POs will keep the PD informed of project implementation progress.	*Preparation and Coordination of Virtual Workshop* *Send General Information Circular*
August 2021	Delivery of In-Person Workshop Use of Event Attendance List	*June 2022*	• The Proposing APEC Economy will host the virtual workshop and facilitate the training delivery. • During workshop delivery, experts will solicit best practices from participants. • The POs will collect the pre-workshop and post-workshop questionnaires. • The POs will use the Event Attendance List template to collect participant and expert data, and adhere to	Delivery of Virtual Workshop Use of Event Attendance List

Previous		New		
Time	Deliverable	Time	Task	Deliverable
			the necessary requirements regarding data collection and the template.	
September – November 2021	Execution of Follow-Up Activities Continuation of Progress Monitoring Finalization of Reports Submission of Best Practices Guidelines and Workshop Summary Submission of Financial Documentary Requirements	*July – September 2022*	• July 2022 (one month post-workshop): the POs will send the follow-up survey and continue to solicit best practices input. • August 2022 (two months post-workshop): the POs will follow-up to ensure receipt of all survey responses. In coordination with collaborating stakeholders, the POs will also select participants and conduct the targeted interviews. • The POs will evaluate the data collected by the follow-up survey and targeted interviews, and include the findings in relevant summaries.	Execution of Follow-Up Activities Continuation of Progress Monitoring
		October – November 2022	• In coordination with collaborating stakeholders, the POs will identify and finalize recommendations from the workshop. • The POs will submit the Best Practices Guidelines and Workshop Summary for APEC publication (projected by October 2022). • The POs will resolve all project related payments and reimbursement claims, if applicable, and submit financial documentary requirements to the Secretariat via the PD (due at least 6 weeks before project completion).	Finalization of Reports Submission of Best Practices Guidelines and Workshop Summary Submission of Financial Documentary Requirements
December 2021	*End of project*	*December 2022*	• Project completion.	*End of project*
February 2022	*Submission of Completion Report*	*February 2023*	• The POs will complete and submit the Completion Report of the project to the PD (due within 2 months after project completion).	*Submission of Completion Report*
6-12 months after project completion	*Post-Project Completion Activity*	*6-12 months after project completion*	• The POs will participate in the Long Term Evaluation of APEC Projects conducted by the Secretariat.	*Post-Project Completion Activity*

Appendix B – Workshop Agendas

B.1 Part 1 Workshop

Two-Day Virtual Sessions: 24 and 26 February 2021 (GMT+8)

DAY ONE	

8:00 – 8:10 am	**Welcome and Introductory Remarks** - Moderator: Eric Yatar, Deputy Executive Director, International Policy and Programs Division, U.S. Transportation Security Administration - Peter Hearding, Executive Director, International Policy and Programs Division, U.S. Transportation Security Administration
Session 1 8:10 – 8:50 am	**Overview of Security Culture as a Basis for Random and Unpredictable Security Measures** This session will present an overview of what it means to have a culture of security within an organization and explain its elements and foundational principles, to include the unique threats posed by aviation insiders. The International Civil Aviation Organization Security Culture model will specifically be addressed, as well as the establishment of baseline security measures in accordance with international standards. - Ross Lockie, Regional Officer, Aviation Security and Facilitation, International Civil Aviation Organization
8:50 – 8:55 am	**Break**
Session 2 8:55 – 9:25 am	**What do Random and Unpredictable Security Measures Look Like?** This session will describe practical elements included in designing random and unpredictable security countermeasures. - Alyssa Gee, Program Manager, Transportation Security Sector Assistance, U.S. Transportation Security Administration
Session 3 9:25 – 9:55 am	**Programmatic Elements and Requirements for Implementing Random and Unpredictable Security Measures** This session will discuss management essentials for program implementation, such as program documentation, budgeting and communication with stakeholders, with a focus on elements that are cost-effective and operationally efficient. - Alyssa Gee, Program Manager, Transportation Security Sector Assistance, U.S. Transportation Security Administration
9:55 – 10:00 am	**Q&A and Day One Wrap**

8:00 – 8:15 am	**Welcome and Recap of Day One**
	- Moderator: Eric Yatar, Deputy Executive Director, International Policy and Programs Division, U.S. Transportation Security Administration

Session 4 8:15 – 9:05 am	**Consideration of Risk in Designing Random and Unpredictable Security Measures** This session will introduce participants to the concepts of risk and its three components: threat, vulnerability, and consequence. After providing an overview of risk, experts will explore how random and unpredictable security measures should be designed with risk in mind, to include risk analysis and risk-informed decision making.
	- David McKinley, Program Analyst, International Capacity Development Operations, U.S. Transportation Security Administration

9:05 – 9:10 am	**Break**

Session 5 9:10 – 9:50 am	**Random and Unpredictable Security Measures Case Study** This session will invite experts to provide an overview of their experiences and lessons learned in implementing their economy's programs, to include the U.S. Transportation Security Administration on its previous Playbook program and its current application.
	- Carrie Hazel, Deputy Assistant Federal Security Director, Threat Assessment Programs, Philadelphia International Airport, U.S. Transportation Security Administration - Michael Lynch, Senior Aviation Security Policy Advisor, Transport Canada - Nathalie Herbelles, Senior Director, Security and Facilitation, Airports Council International World

9:50 – 10:00 am	**Evaluation and Closing Remarks**

B.2 Mini Webinar

One-Day Virtual Session: 4 August 2021 (GMT+8)

7:00 – 7:10 am	**Welcome and Introductory Remarks** - Moderator: David Mickalonis, Manager, Transportation Security Sector Assistance, U.S. Transportation Security Administration
Session 1 7:10 – 8:10 am	**Overview of Departments Implementing Random and Unpredictable Measures** This session expands on programs discussed during Session 5, Part 1 of the workshop. Quality control and security operations experts from the TSA, with specific expertise in deploying random and unpredictable security measures in the airport operating environment, will present an overview of the departments at Philadelphia International Airport in the United States that implement such measures. Topics to be addressed include: o TSA Compliance Program – TSA inspectors carry out a broad range of statutory, regulatory, and program specific quality control activities. o Advanced Threat Local Allocation Strategy (ATLAS) – ATLAS uses intelligence and risk assessments to determine the impact of exploiting security vulnerabilities in both the public and sterile areas of an airport. o TSA Explosive Detection Dogs – The use of highly trained explosives detection canine (K9) teams is a proven deterrent to terrorism directed towards transportation systems. Experts will discuss how TSA employs K9 screening capabilities in and around the airport. o TSA Transportation Security Specialists - Explosives (TSSE) – TSA TSSEs provide extensive expertise regarding detecting, identifying and responding to explosive device threats to civil aviation. - Carrie Hazel, Deputy Assistant Federal Security Director, Threat Assessment Programs, Philadelphia International Airport, U.S. Transportation Security Administration
8:10 – 8:20 am	**Break**

Session 2 8:20 – 9:20 am	**Overview of the Methodologies Used in Those Departments** TSA experts will describe the methodologies used in employing random and unpredictable security countermeasures, as well as the importance of planning, outreach and engagement, and stakeholder involvement in each program. - Carrie Hazel, Deputy Assistant Federal Security Director, Threat Assessment Programs, Philadelphia International Airport, U.S. Transportation Security Administration - Osbourne Shepherd, Supervisory Transportation Security Inspector, Cargo, Philadelphia International Airport, U.S. Transportation Security Administration - Scott Vance, Supervisory Transportation Security Inspector, Aviation, Philadelphia International Airport, U.S. Transportation Security Administration - Jim Byrne, Supervisory Transportation Security Inspector, Surface, Philadelphia International Airport, U.S. Transportation Security Administration - Nathan Benson, Supervisory Transportation Security Specialist, Canine, Philadelphia International Airport, U.S. Transportation Security Administration - Alex Broughton, Transportation Security Specialist, Canine, Philadelphia International Airport, U.S. Transportation Security Administration - Troy Small, Supervisory Transportation Security Officer, Philadelphia International Airport, U.S. Transportation Security Administration - Joe Belger, Lead Transportation Security Officer, Philadelphia International Airport, U.S. Transportation Security Administration
9:20 – 9:50 am	**Question and Answer**
9:50 – 10:00 am	**Closing Remarks**

B.3 Part 2 Workshop

Two-Day Virtual Sessions: 8-9 June 2022 (GMT+8)

DAY ONE	
8:00 – 8:15 am	**Welcome and Introductory Remarks** - Moderator: Kalei Hall, International Relations Specialist, U.S. Transportation Security Administration - Gregory Hawko, Federal Security Director, Washington State Airports, U.S. Transportation Security Administration
Session 1 7:15 – 8:45 am	**Part I Review: Random and Unpredictable Security Countermeasure Concepts** This session will review concepts of risk and its three components – threat, vulnerability, and consequence – learned during Part 1 of the project. Participants will also discuss the practical elements of random and unpredictable security countermeasures, and the benefits of leveraging unpredictable screening techniques to mitigate risk. - Steven Fraser, Supervisory Transportation Security Inspector, Seattle-Tacoma International Airport, U.S. Transportation Security Administration
8:45 – 8:50 am	**Break**
Session 2 8:50 – 9:40 am	**Analyzing Vulnerability to Reduce Risk** This session will explore vulnerabilities typically found in an airport environment and use vulnerability analysis to determine potential root causes and appropriate mitigation measures. While the workshop's discussions will focus on a fictional airport, participants will be asked to consider their own economy's airport vulnerabilities and actively engage in the vulnerability analysis exercise. - Ryan Adams, Supervisory Transportation Security Inspector, Seattle-Tacoma International Airport, U.S. Transportation Security Administration - Tim Sanderson, Transportation Security Inspector, Seattle-Tacoma International Airport, U.S. Transportation Security Administration
9:40 – 9:50 am	**Break**
Session 3 9:50 – 10:45 am	**Developing Risk Mitigation Tools** This session will explore the development of random and unpredictable security countermeasures to reduce risk, including introduction of the risk mitigation register tool and how to develop one. During this session, participants will be led through the construct of an implementation plan for random and unpredictable security countermeasure techniques. - Kathryn Menconi, Transportation Security Inspector, Seattle-Tacoma International Airport, U.S. Transportation Security Administration - Miranda Fisher, Transportation Security Inspector, Seattle-Tacoma International Airport, U.S. Transportation Security Administration

| 10:45 – 11:00 am | **Q&A and Day One Wrap** |

DAY TWO

8:00 – 8:15 am	**Welcome and Recap of Day One** - Moderator: Kalei Hall, International Relations Specialist, U.S. Transportation Security Administration - Ryan Adams, Supervisory Transportation Security Inspector, Seattle-Tacoma International Airport, U.S. Transportation Security Administration

Session 4 8:15 – 9:40 am	**Practical Exercise for the Random and Unpredictable Security Countermeasures Implementation Plan** This session will provide participants the opportunity to put their implementation plans into action through live tabletop exercises. During the exercise, threat actors will carry out specific scenarios against a fictional airport environment. Participants will be asked to consider risk elements in real-time, consider various attack methods and factors across the airport environment, and deploy countermeasures to mitigate the risk, as appropriate. - Brian Rogers, Assistant Federal Security Director, Inspections, Seattle-Tacoma International Airport, U.S. Transportation Security Administration - Ryan Adams, Supervisory Transportation Security Inspector, Seattle-Tacoma International Airport, U.S. Transportation Security Administration - Marc Staten, Transportation Security Inspector, Seattle-Tacoma International Airport, U.S. Transportation Security Administration

9:40 – 10:00 am	**Break**

Session 5 10:00 – 10:30 am	**Exercise Review: 'Hot Wash'** This session will review the outcomes of the practical exercises and invite participants to share their experiences and lessons learned. Participants will also consider best practices on how to conduct similar practical exercises within their own economies. - Brian Rogers, Assistant Federal Security Director, Inspections, Seattle-Tacoma International Airport, U.S. Transportation Security Administration - Ryan Adams, Supervisory Transportation Security Inspector, Seattle-Tacoma International Airport, U.S. Transportation Security Administration - Marc Staten, Transportation Security Inspector, Seattle-Tacoma International Airport, U.S. Transportation Security Administration

10:30 – 11:00 am	**Evaluation and Closing Remarks**

Appendix C – Project Evaluation Instruments

C.1 Part 1: Pre-Workshop Questionnaire

Questions	Sum	Percentage of Respondents (%)
How long have you been in your current position?		
< 1 year	5	13.5
1-5 years	16	43.2
6-15 years	16	43.2
> 15 years	0	0.0
Do you have supervisory and/or managerial responsibilities in your current position?		
Yes	26	70.3
No	10	27.0
If yes, please mark all that apply:		
Operations	18	48.6
Administration	15	40.5
Personnel	14	37.8
Budget	5	13.5
Planning	15	40.5
Other	5	13.5
If other, please describe:		
I am in charge of the security staff including our own personnel and the private security concerning the areas of CCTV, bagage screening, access control, and passenger screening.[10]		
Program Management.		
I supervise the implementation of the activities of all personnel to ensure faithful compliance with their official duties and responsibilities consistent with established laws, policies, procedures, rules and regulations. I also conduct monitoring and inspections to ensure all law enforcement and aviation security functions are enforced and implemented.		
Drafting, editing, coordinating, approving airport security policy for airport operators.		
Does your Economy already employ random and unpredictable security measures within the aviation domain?		
Yes	23	62.2
No	6	16.2
Do not know	8	21.6
If yes, please describe:		
Covert testing approaches.		
[Economy regulator] employs random and unpredictable security measures within the aviation domain. Some of these measures include random screening of non-passengers and random and unpredictable document of entitlement verification of persons who access an aircraft in the SRA.		
Yes, [Economy] employs random and unpredictable security measures such as randomly selecting non-passengers for screening, and random and unpredictable requests to see documents of entitlement to access aircraft in SRAs.		
In [Economy], we have laws and national programs that support the ICAO guidelines for random inspections and controls, according to the national alerts applying gradually from the lowest to the highest risk and threats. These apply to passengers, crew and users.		
Yes, currently our security officers conduct random security measures during the passenger screening at airport security checkpoints. Additionally, in some areas in the airside, the security officers conduct unpredictable security measures on airport employees.		
Random and unpredictable security measures have been implemented in [Economy] airports and in accordance with our National Civil Aviation Security Programme (NCASP), which the 2020 issuance made it a requirement for airports.		
Random and unpredictable security measures are already regulated in the NCASP.		
Random search is conducted in several cases. For example, pat-down search or ETD screening when a passenger goes through walk-through metal detector (WTMD). The percentage of random search is changed based on the threat level that [Economy regulator] assesses.		

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[10] Most free-form responses were included in the tables, except repetitive responses, and may have been lightly edited for clarity, to conform with APEC nomenclature, and/or to ensure anonymity in the responses.

My Economy employs random and unpredictable security measures in accordance with the NCASP.

We do random tests with the security personnel, such as requiring a percentage go through the security check point.

We apply random and unpredictable measures at the airports of the group in the inspection of passengers and their hand luggage.

We assess the security program of airports and airlines, verify operational procedures, and exercise simulated unlawful acts.

From time to time, we have [other economies] Audit and Check to monitor our readiness to respond to different aviation threats.

At the airport level, conducting random inspections on all vehicles and personnel entering the SRAs was implemented depending on the security conditions issued by the [Economy regulator].

Random and unpredictable measures during the screening process requires a portion of passengers (percentage varies on security condition) to undergo additional screening.

[Local laws] and the NCASP requires aviation security stake holders to implement random unpredictable security measures in the respective operation system.

Depends on threat level.

The random and unpredictable security measures are based on a risk assessment and the threat level announced by appropriate Authority. The measure informs unpredictable random screening at the airport.

Examples include:
- Randomly selecting individuals for specialized screening through boarding pass printing results,
- Individuals participating in a trusted traveler program may be selected for additional screening,
- Use of canines at various airport/gate locations, and
- Random ETD during the screening process.

Random and unpredictable measures are applied throughout the aviation security operation, as well as described within various regulatory security policy programs.

We have a unpredictable random process that is articulated clearly in standard operating procedures.

All random/unpredictable screening measures discussed during Day 1 of the workshop are currently deployed in the [Economy].

Are there any legal authorities and/or policies governing the implementation of random and unpredictable measures in your Economy?		
Yes	26	70.3
No	3	8.1
Do not know	8	21.6

If yes, please describe:

Extensive legislative oversight.

Yes, [Economy]'s regulatory framework governs the implementation of random and unpredictable measures. The [domestic legislation] provides the authority to create regulations and security measures respecting aviation security (e.g., regulations restricted areas at aerodromes or respecting the screening of persons entering an aerodrome, etc.).

The [local legislation] allows the Minister of Transport to make measures respecting aviation security. Some of these include employing random and unpredictable measures to randomly select non-passengers for screening.

The Civil Aeronautical Authority has trained personnel that applies the measures in [Economy], that depends of the [local] government.

The implementation of random and unpredictable measures in [Economy] airports are being monitored by Quality Control (QC) Team at the domestic level. Ministry of Transportation Decree no.211 (year 2020) and NCASP.

QC Team at the domestic level conducts QC activities towards the implementation of random and unpredictable measures in airports.

Everything is coordinated through the Federal Civil Aviation Authority (CAA).

[Economy] CAA, NCASP, and secondary regulations.

We have the mandatory circular CO 17.6 / 16 of the Federal CAA, which includes functions to perform a percentage of random manual inspections of passengers and their luggage in the inspection filters.

Federal CAA, National Guard, Intelligent National Center.

ICAO Annex 17, and airport, aircraft operator, and foreign air carrier specific security programs.

Memorandum Circulars to this effect as far as [Economy CAA] is concerned.

Office of Civil Aviation, [Economy regulator], [Economy] is responsible for QC of AVSEC system, and random and unpredictable test are one of the measures.

It is established in the NCASP and Risk Assessment Handbook.

What do you want to learn through this workshop series (including the virtual and in person sessions)? Please describe:

Best practices and how to incorporate in the different AVSEC areas.

The effectiveness of measures applied by other areas.

I am interested in the applications to airspace and emerging technologies (such as drones).

I look forward to learning about Security Culture as a basis for random and unpredictable measures as well as how to incorporate risk when designing random and unpredictable security measures.

I would like to know more about:
How random and unpredictable security measures may be linked to organizational and Security Culture to further mitigate the Insider Risk.
How performance indicators can be developed and used to measure the effectiveness of random and unpredictable security measures.

I want to learn about how the other economies applies the measures according to their realities, pretending to take some ideas to my [Economy] to analyze its application.

How to build random and unpredictable security measures for different kind of airports, for example, airports located in cities with ethnic conflict and mining cities.

The basic knowledge about random and unpredictable techniques in their AVSEC.

I would like to learn more about how to determine random and unpredictable checks in all areas proportionately and based on risk assessment, and learn best practice in other economies.

How to determine random and unpredictable check in all areas proportionately and based on risk assessment.

I would like to learn:
Best practices of random and unpredictable measures in each economy.
How to evaluate the effect of each measure.

Hopefully can learn something on the implementation of random and unpredictable measures and can apply such measures at all airports in [Economy].

How to implement random and unpredictable measures, and Cybersecurity.

I want to learn new methods to manage risks and personnel in the AVSEC area. I am working on a project called Security Management System (SeMS), so, I want to learn more about these topics.

At the virtual session I would like to come up with a "standardized" procedure to detect unpredictability in AVSEC operations. While at the in person sessions, I would like to discuss with other participants about the results of their procedures, effectiveness and reliability.

I want to understand and learn to balance the resources and apply them to identify the vulnerabilities that may affect the aviation security. In addition, I want to develop the ability to design or enhance the mitigation system that my [Economy] could provide us.

I would like to learn the best practices established by experts in random and unpredictable security measures and their relationship to security culture and risk analysis.

I want to learn more about the the implementation of random and unpredictable measures in airports, as a best practices, in orden to improve our security plan and offer confidence to the international and domestic airlines who fly to our airport.

I would like to learn about random and unpredictable techniques and the different type of measures versus insider's threats and how to implant them all this to have a more robust security.

Learn to optimize and improve the resources available, as well as the policies and procedures that should be implemented to reduce and / or mitigate risks.

Please provide any other information you would like the Event Organizers to know.

The Minister of Transportation Decree Number 211 Year 2020 on NCASP has been regulated and it complies with Amendment 17 to Annex 17. This requirement is required for busy airport in particular.

Random and unpredictable measures excercises.

I am happy and motivated to learn from all the people who participate in this workshop.

We are planning to invest in upgrading our security measures by purchasing modernized and high technology equipment.

This is a great subject to learn about. Thank you for organizing this workshop.

C.2 Part 1: Post-Workshop Questionnaire

Questions	Sum	Percentage of Respondents (%)
What is your overall level of satisfaction with this virtual workshop?		
Very Satisfied	19	73.1
Satisfied	7	26.9
Not Satisfied	0	0.0
Please indicate your satisfaction with the following aspects of the virtual workshop:		
Event Platform (MS Teams)		
Very Satisfied	14	53.8
Satisfied	10	26.9
Not Satisfied	2	7
Speakers		
Very Satisfied	20	76.9
Satisfied	6	23.1
Not Satisfied	0	0.0
Session Content		
Very Satisfied	18	69.2
Satisfied	8	30.8
Not Satisfied	0	0.0
Number of Sessions Offered		
Very Satisfied	13	50.0
Satisfied	13	50.0
Not Satisfied	0	0.0
Dates and Times of Event		
Very Satisfied	15	57.7
Satisfied	11	42.3
Not Satisfied	0	0.0

Please provide any additional comments you might have on the above aspects of the virtual workshop

Event Platform (MS Teams): as I logged in without Audio/Video functions (limitation of logging in from work computer), not having a question and answer (Q&A) option or ability to send message (Chat) to panelist or facilitator was a bit limiting. Not sure if teams has this option or only in Zoom. I would definitely suggest having a Q&A option button where pax can "up vote" questions and were panelist can answer in greater detail the questions.
Speakers: the speakers were very informative especially Session 5 - Random and Unpredictable Security Measures Case Study. This really helped to bring home the point of the workshop.
Session Content: very good!
Number of Sessions Offered: very satisfied and good pacing for a virtual workshop
Dates and Times of Event: great for participants.

Event Platform (MS Teams): useful platform.
Speakers: very prepared speakers.

Event Platform (MS Teams): I think moderator's network was not so smooth.
Dates and Times of Event: 8:00 am [Economy] time is quite early. It is nice if 8:30 or 9:00 am.

Session Content: I would like more specific information, like the three last speakers, they spoke about their experience and that is great, more experiences like that I would like. If possible to see the real examples.
Number of Sessions Offered: both sessions were fantastic; a third one more would be great!

Event Platform (MS Teams): it was very good.
Speakers: very professional all of them, with a lot of knowledge about the items.
Session Content: it was complete.
Number of Sessions Offered: I wish, it could it be more sessions, I think it is very interesting to exchange experiences.
Dates and Times of Event: it was ok.

Event Platform (MS Teams): the performance of platform was great, the communication and display satisfied and make easy and comfortable.
Speakers: all of them were fantastic, have knowledge and the exchange comments contribute the interesting in each topic.
Session Content: I think that is complete and cover the main and aim of workshop.
Number of Sessions Offered: agree with the number.
Dates and Times of Event: for us in [a particular region] the time help us to attend it with a free time and focus completely.

Event Platform (MS Teams): kicked out first day, but second day was stable.
Speakers: well-organized composition of speakers representing different point of view.

Event Platform (MS Teams): the program for some reason kept crashing for me and I had to keep relogging back in.
Dates and Times of Event: late for those of us in [Economy] but understand the need to flex due to international partners.

Event Platform (MS Teams): the platform worked very well. No complaints.
Speakers: great variety of speakers on the subject of random and unpredictable security measures. Enjoyed all, but especially enjoyed those from outside [other economies].
Session Content: very relevant to the overarching subject.
Number of Sessions Offered: just right.
Dates and Times of Event: worked well for all participants, given the range of economies participating and their respective time zones.

How would you rate the usefulness of the information and material covered in:

Session 1: "Overview of Security Culture as a Basis for Random and Unpredictable Security Measures"

Very Useful	16	61.5
Useful	7	26.9
Somewhat Useful	1	3.8
Not Useful	0	0.0

Session 2: "What do Random and Unpredictable Security Measure Look Like?"

Very Useful	17	65.4
Useful	6	23.1
Somewhat Useful	1	3.8
Not Useful	0	0.0

Session 3: "Programmatic Elements and Requirements for Implementing Random and Unpredictable Security Measures"

Very Useful	18	69.2
Useful	6	23.1
Somewhat Useful	0	0.0
Not Useful	0	0.0

Session 4: "Consideration of Risk in Designing Random and Unpredictable Security Measures"

Very Useful	19	73.1
Useful	6	23.1
Somewhat Useful	0	0.0
Not Useful	0	0.0

Session 5: "Random and Unpredictable Security Measures Case Study"

Very Useful	18	69.2
Useful	7	26.9
Somewhat Useful	0	0.0
Not Useful	0	0.0

If possible, please provide specific feedback:

I have an extensive security background so I found the information informative and a good refresher.

According to the subject, the information and the information that the speakers provide, it is a good way to know the experience of other economies about how to face and apply this measures for us.

It would be nice if the case study is based on the incident occurred worldwide including Asia Pacific region.

The expert panel covered the real situation that is present in the aviation industry, many topics I will take back to overview what can happen in my [Economy].

I enjoyed all of the sessions but particularly enjoyed the speaker from [Economy]. As TSA considers measures for aviation worker screening, it was wonderful to hear another economy's perspective.

Considering your level of knowledge and understanding of Random and Unpredictable Aviation Security Countermeasure Development and Implementation before you attended this virtual workshop, how would you rate your level of knowledge and understanding of these principles now that you have completed the virtual workshop?		
After completing the workshop, my understanding and knowledge:		
Was significantly enhanced	20	76.9
Was somewhat enhanced	4	15.4
Remained the same	1	3.8

If possible, please provide specific feedback:

In my position of risk analyst, my knowledge was according to the experience shared by the speakers. Nevertheless, is a good instance to know other realities about how to face this process.

Knowing the best practice for operational side.

I understand this virtual session covers basic information. I look forward to in-person sessions so I can share more practical information with other participants.

[Economy] is in the process of approving the SRA. This random and unpredictable security measures may be on top of the existing security measures.

This workshop show me and refresh me in a very clear way, many different measure to follow the random and unpredictable security, some of them we already use, maybe without being aware of the purpose, and some other we can use to improve the security performance.

In was very interesting learn how other [economies] apply the recommendations of Doc 8973 from ICAO.

We are improving our regulation regarding Random and Unpredictable Aviation Security Countermeasure, hence this workshop is very useful.

It helped me understand more what are the random and unpredictable activities and the risks it entail in devising its countermeasures.

I was pleased to gain a better overall knowledge of what is meant by Random and Unpredictable Aviation Security Countermeasures. Particularly outside of "screening procedures."

How will you apply what you learned during this virtual session? Please describe:

Will definitely include this in conversations with AVSEC partners here in [Economy].

I may endeavor to touch base with the [Economy] representative once I get to Post to assist them in this space.

I plan on sharing the information I learned during the virtual session with colleagues within [Economy regulator] AVSEC to determine whether or not some of the lessons learned presented by TSA can be operationalized in the [Economy] aviation sector.

I will consider and explore new options for random and unpredictable AVSEC countermeasure development and implementation.

I will carry out a workshop to introduce to my team how to understand random and unpredictable AVSEC measure. After this, planning how to implement this kind of measures.

Formulate it as guidance material for operational purposes.

Must have discussion with authority level to get more clearly on the concept of Random and Unpredictable AVSEC. Agreed with the concept and call meeting with airport operators how to implement at the airport level. Before implement the Random and Unpredictable Aviation Security at airports, the authority must prepare the guidance and amendment the NCASP.

Random and unpredictable security measures is one of the tool for the practicing Security Culture.

For example: I can apply some changes in the Security Plan of the airport, improving the security measures for the airlines or airport staff, reducing the risk with the possible insiders.

Supporting the company in the development of a program applicable to the airport based on the information provided.

Making a risk assessment by applying countermeasure of randomness and unpredictability enhancing security of all areas at the airport.

Implementing new random practices among my staff, not to do tasks routinely.

First is necessary review the security risk at the airport, after would test the security measures against this random and unpredictable threat, design the protection, evaluate and measure the results, finally determinate the enhance process.

As assigned in the on-going review and revision of the NCASP, random and unpredictable measures will be highly incorporated. In our current NCASP, this measure is mostly in the conduct of screening, but as how it was explained in this session, all AVSEC areas could have and be topped with random and unpredictable measures.

Through enhancements of programs that would develop our understanding of security counter measures under our department and later on create module for the entirety of [Economy CAA].

It provided both holistic and specific pictures of randomness and unpredictability to consider when a regulator newly set or evolve security policy or measures.

Which of the following statements best describes your overall evaluation of the virtual workshop?		
The workshop introduced useful concepts and helped me to think critically about and explore new options for random and unpredictable aviation security countermeasure development and implementation.	24	92.3

The workshop helped me think about random and unpredictable security concepts, but did not introduce any new development or implementation options that I have not previously considered.	1	3.8
The workshop was not helpful.	0	0.0

If possible, please provide specific feedback:

Even when I have knowledge about this subject, is always positive to share experiences about how to apply measures.

Definitely this course is helpful and [Economy CAA] will consider to enhance and to implement this measures to all airports in [Economy].

The workshop is very useful, not because the introduction of the concepts, but because it show us with real people, the experience of many places in the world how they are applying the random and unpredictable countermeasures, that is great!

All knowledge help us to view a different way of thinking that maybe we do not see this kind, so we learned new concepts and treatment.

It heped me conceptualized programs that could be useful to [Economy CAA's] security countermeasures module.

Was there enough time devoted to questions/discussions during each session of the virtual workshop?

Yes	24	92.3
No	1	3.8

If no, please describe:

[Answered no] I think is necessary to have the second part of this seminary.

[Answered yes] Visit to airports and learn their current random and unpredictable counter measures being implemented.

Is there anything else you would like to learn or explore in more depth during the future in-person session of this workshop? If yes, please describe.

When you conduct the face to face session, I would really be very beneficial if those in session one but unable to travel due to COVID-19 restrictions still be able to participate virtually. Keeping fingers crossed for this option.

I would like to learn more about TSA's Behaviour Observation program during the future in-person session. I am interested in learning the training that a Behaviour Observation officer has to undergo to become qualified in identifying suspicious activity or determining when a person may have nefarious intent to commit an AVSEC incident. I am also interested in learning about any random/unpredictable measures that other economies have implemented to help mitigate cyber security threats/vulnerabilities.

I would like to know more about implementation challenges, technological options (i.e., randomisers, etc.) and how to apply random and unpredictable measures to mitigate insider threat and cybersecurity.

Yes, about how to apply measures according to the local alerts.

How to prepare a playbook with the random and unpredictable AVSEC measure.

Drone countermeasure system for safeguarding civil aviation against acts of unlawful interference.

Each session helped me to learn about the advantage of implementaion of randomness and unpredictable measures. For the in-person session, it would be great if I could learn about the program you already installed in detail (e.g., how you established the program, how to each airport implements and assesses the program, how to change the contents of the program).

I would like to know how to implement this random and unpredictable security measures for cargo and mail since [my Economy] does not practice the regulated agent regime. Having these measures is practicable if terminal security is going to implemented.

I would like to learn how to establish the limits in the information about the countermeasures, I mean how define who has to know when, how to determine where you are going to apply some measure or how secret must they be, how much communication must be anticipated, and that fine implementation. And how to avoid random becoming routine.

I would like to learn more about how to create the Randomness and Unpredictability team.

I would like meet and see how the airport develop the countermeasure and implement in situ and the important maintain and re-evaluated as a continuous process.

Just the best practices of the other economies and how it can be done in the [my Economy] considering our resources.

Maybe we can invite someone who can demonstrate risk assessment procedure/process, which will beneficial for participants to learn skills or compare to their own process.

Please provide any other information you would like the Event Organizers to know, including any suggestions on how this virtual workshop could be improved.

First off congratulations to the Team! It was a great an informative workshop that brought stakeholders together. The limitation of travel due to COVID-19 was overcome through technology. Although not as good as face to face, your sessions were still engaging and informative. Thanks again!

It would be good to know how to make a matrix to apply the measures, according to the local alerts, for the gradual application.

I would like to see in place how the random and unpredictable security measure work.

The workshop very interesting and efficient and help us to improve the knowledge regarding random and unpredictable AVSEC at the airports.

I would like to learn more about the Regulatory framework in [other Economies].

Discuss random and unpredictable AVSEC countermeasure at the public areas.

More AVSEC Experts speakers for the listeners to gain additional concepts about random security unpredictability.

It was informative workshop providing wide rage information. It also made me look back what TRUE randomness and unpredictability I have in my system comparing to what the speakers shared. I hope the future in-person session can be carried out as planned, so that the knowledge shared during the virtual session can be more mature.

C.2 Post-Mini Webinar Questionnaire

Questions	Sum	Percentage of Respondents (%)
What is your overall level of satisfaction with this Mini Webinar?		
Very Satisfied	5	83.3
Satisfied	1	16.7
Not Satisfied	0	0.0
Please indicate your satisfaction with the following aspects of the Mini Webinar:		
Event Platform (MS Teams)		
Very Satisfied	5	83.3
Satisfied	1	16.7
Not Satisfied	0	0.0
Speakers		
Very Satisfied	5	83.3
Satisfied	1	16.7
Not Satisfied	0	0.0
Session Content		
Very Satisfied	4	66.7
Satisfied	2	33.3
Not Satisfied	0	0.0
Number of Sessions Offered		
Very Satisfied	4	66.7
Satisfied	2	33.3
Not Satisfied	0	0.0
Dates and Times of Event		
Very Satisfied	6	100.0
Satisfied	0	0.0
Not Satisfied	0	0.0
Please provide any additional comments you might have on the above aspects of the virtual workshop		
Event Platform (MS Teams): signal failure. Session Content: I would like to watch videos about it. Number of Sessions Offered: 3 session will be fine.		
How would you rate the usefulness of the information and material covered in:		
Session 1: "Overview of Departments Implementing Random and Unpredictable Measures"		
Very Useful	4	66.7
Useful	2	33.3
Somewhat Useful	0	0.0
Not Useful	0	0.0
Session 2: "Overview of Methodologies Used in Those Departments"		
Very Useful	5	83.3
Useful	1	16.7
Somewhat Useful	0	0.0
Not Useful	0	0.0
If possible, please provide specific feedback:		
It provided us a better view of what to implement and how we can improve it.		
The information throughout the sessions covered the aim.		
In Session 1, the overt and covert are both useful as unpredictable measures. In Session 2, the ATLAS Team responsibilities are very useful to learn about because you can easily observe suspicious activity.		
Considering your level of knowledge and understanding of Random and Unpredictable Aviation Security Countermeasure Development and Implementation before you attended this Mini Webinar, how would you rate your level of knowledge and understanding of these principles now that you have completed the Mini Webinar?		
After completing the Mini Webinar, my understanding and knowledge:		

Was significantly enhanced	6	100.0
Was somewhat enhanced	0	0.0
Remained the same	0	0.0

If possible, please provide specific feedback:

I understood the random and unpredictable AVSEC countermeasure that TSA implemented.

As a CAA, you have a better view of the measures and countermeasures taken to reduce the possibilities of a threat!!

Like everything in AVSEC, you get new and good information so I can understand how to protect our airport facilities against unlawful acts.

It was significant to me insider threat can be mitigated by using Compliance Security Enhancement Through Testing (COMSET).

How will you apply what you learned during this Mini Webinar? Please describe:

Currently our organization is working on how to implement random and unpredictable AVSEC countermeasures in our airport system, so will take some of key aspect and best practices to consider them in our planning.

In large airports, we have over 20,000 employees, hence implementing random and unpredictable AVSEC countermeasure can help improve our security procedures.

To enhance my day to day job and up to date our AVSEC procedures.

Develop the tools as a best practice. Firstly, identify the benchmarking between my facilities and operations vs. examples or practices by the speakers.

Request for related trainings and learnings to expand and on the lessons learned in the webinar.

Not only COMSET but also by applying the Insider threat Mitigation Activity (ITMA) as the perfect strategy in the detection of potential threat.

Which of the following statements best describes your overall evaluation of the Mini Webinar?

The Mini Webinar introduced useful concepts and helped me to think critically about and explore new options for random and unpredictable aviation security countermeasure development and implementation.	6	100.0
The Mini Webinar helped me think about random and unpredictable security concepts, but did not introduce any new development or implementation options that I have not previously considered.	0	0.0
The Mini Webinar was not helpful.	0	0.0

If possible, please provide specific feedback:

[None provided]

Was there enough time devoted to questions/discussions during each session of the Mini Webinar?

Yes	6	100.0
No	0	0.0

If no, please describe:

[Answered yes] Yes because just what the speaker did and the way they answered the questions was to share their respective duties in order to easily enlighten the listeners on how important random and unpredictability is to AVSEC.

Is there anything else you would like to learn or explore in more depth during the future in-person session of this workshop? If yes, please describe.

Always is going to be very useful take experience from the best practices. For us, the most important challenge is to implement the random and unpredictable AVSEC countermeasures, so I hope the future in-person session of this workshop to share experiences about more real cases.

I would like to learn about implementing random and unpredictable AVSEC countermeasures in public areas.

Yes the use of K9s.

Please provide any other information you would like the Event Organizers to know, including any suggestions on how this Mini Webinar could be improved.

Thanks for great job, if possible to visualize more AVSEC worker as speaker.

This is a tough question because of the pandemic situation you can not see directly the practice in real world.

You could make a Questionnaire to the participants, to know what they are doing about random and unpredictable AVSEC countermeasure at the airports.

C.3 Part 2: Pre-Workshop Questionnaire

Questions	Sum	Percentage of Respondents (%)
How long have you been in your current position?		
< 1 year	1	5.9
1-5 years	11	64.7
6-15 years	2	11.8
> 15 years	3	17.6
Do you have supervisory and/or managerial responsibilities in your current position?		
Yes	14	82.4
No	3	17.6
If yes, please mark all that apply:		
Operations	10	58.8
Administration	10	58.8
Personnel	11	64.7
Budget	4	23.5
Planning	8	47.1
Other	4	23.5
If other, please describe:		
Capacity Building and Project Management.		
Audit, Certification, Investigation of security incidents, Security project work, Covert testing, Advice and guidance as a part of engagement within CAA and the aviation industry participants.		
Does your Economy or orgnization analyze vulnerabilities within the aviation ecosystem (i.e., airport, aviation facility) on a regular or recurring basis?		
Yes	14	82.4
No, only once	0	0.0
No, never	1	5.9
Do not know	1	5.9
If yes, please list aviation facilities considered (e.g., airport terminal, cargo facility, fuel farm, etc.):		
Warehouses, airport terminals, fuel farms, airport facilities, navigation system factilities, other that might be required.		
Airport terminal, cargo facilities, perimeter, fuel facilities, fixed based operator facilities, aviation facilities and local authorities' facilities.		
Airport Terminal, Airport Perimeter, Air Navigation Facilities.		
Airport terminal, cargo facility, fuel farm and vital installation.		
Through the risk and threat analysis methodology published by the Authority.		
Airport terminal, cargo facility, platform.		
Fuel farm, Air navigation facilities, Terminal building, Aprons, Visual Aids supply, Perimeter fence.		
Aerodrome, cargo and mail, airline operations, aviation security services, threats and levels.		
Airport terminal buildings, cargo facility, catering services, fuel depo.		
AVSEC Screening.		
Airport terminal and all airport property.		
What threat scenarios are of critical concern to you, as a security professional, or your organization (i.e., scenarios that keep you up at night)? For example, Insider Threat within a Cargo facility, limited vetting contractor with access to the security restricted area, etc. Please describe:		
For assigned area: insider threat – facilitating people in – unscreened, goods delivery area; training of people who conduct background checking; and depth and rigor in background checking.		
The actual concern is related to the common crimes and the insider risk that might be connected to them.		
Insider threat within cargo facilities. Local indigenous group settled next to airport. Transportation of Valuables.		
My concern is the lack of senior management commitment of any entities, which is the biggest insider threat for me. Once the senior management does not support or ignores security, the Security Culture is unable to be established, and no one will take security seriously and all the security measures will gradually fail.		
Gun fire to aircraft at remote airports.		
Insider threat among workers working at the airport, including airlines and general aviation.		

Inside threat within airport facilities, cargo facility, unauthorized access, etc.

The principle threat inside and around airport is persons and vehicles transit near airside limit fence, priority rivers crossing between restricted areas and public areas.

Insider threat particularly when combined with worker complacency.

Introduction of Burn Improvised Explosives Device (IED).

Insider threat, since most of the time there was a reported baggage theft/pilferage happens during the unloading and loading of baggage from/to the aircraft.

Insider threat anywhere in the airport whether in the terminal or somewhere else on the property. Escorted people and not vetting them beforehand. The perimeter fence of the airport property – people able to get through it (either a hole in the fence or climb under/over it, etc.) and access to a plane or be able to plant something at the airport terminal.

What random security countermeasures are currently employed at your Economy's airport?

Explosives Trace Detection (ETD)	16	94.1
Explosives Detection Dog (EDD)	6	35.3
Patrols	13	76.5
Behavior Detection	16	94.1
Identification/Credential checks	12	70.6
Secondary/Enhanced screening measures	15	88.2
Monitored Closed Circuit Television	10	58.8
Other	4	23.5

If other, please describe:

Undercover work, if needed.

Narcotics Detection Dog.

Covert testing of security controls.

Manual pat-down procedures.

What challenges does your Economy or organization face in developing, analyzing, and/or implementing random security countermeasures? Please describe:

There is still challenge when it comes to data – collection and analysis, what data to collect, how to collect, who will collect and how is this analysed. An opportunity aspect – increasing awareness that maximizing current resources to implement random and unpredictable measures – especially for insider threat is a first step economies can take when looking at deployment random security measures.

Our big challenge is to improve with new technologies to detect randomly non-metallic threats.

One our main challenge is to incorporate new technologies to improve random security countermeasures.

The challenge is the stereotype that the risk level is low and the act of unlawful interference will not happen, so there is no need to keep alert at any time and implement the security measures thoroughly.

Procurement of ETD for airports run by [Economy CAA].

How we evaluate the effectiveness of random measures.

Collaboration among government agency.

Basically, we need to create a culture that helps maintain this type of measure in a sustained manner.

Passenger Complaints and Social Media Exposure.

Develop Security Culture between all the people that work at the airport.

The principal challenges is the intelligent information share between government agencies, air carriers and airports to define the real and principal threat against civil aviation, furthermore the social protest near or access way airports could be a oftentimes challenge.

Getting wider industry understanding of the definition and implementation of random and unpredictable.

Coordination with other agencies and lack of trained personnel to implement such measures.

Uncooperative passengers and airport employees.

Does your Economy or organization conduct practical exercises (tabletop or live exercises) to test risk reduction plans? If yes, please describe how, or if no, please elaborate on why not:

Yes. Is enhanced to the local contingency plan and in also if it is needed.

We have tabletop exercises. During the exercises we create situations with potential risk, according to the airport location, to reduce either its likelihood of occurrence or the consequence of its occurrence, or both.

Yes, we have formulated the contingency plan in response to acts of unlawful interference and terrorist attack, and all the civil airports are required to formulate their own contingency plan and conduct exercises twice a year accordingly.

Airport operators do live excercises regularly (at least once a year).

Yes. Every year collaborate with airport security stakeholders and government agencies.

Yes, practical exercises are carried out where specific contingency procedures are put into practice and the different factors that could help reduce risks are analyzed.

We have not brought to reality a reduction plan so far, we focus more in the passenger experience through the terminal.

Yes, both of them (tabletop and live exercises), we make a meeting, and talk about what kind of risk would they like to test, make a scenario and invite all the persons or organizations that could participate.

Yes through the year my organization conducts several exercises like threat security test in public areas, security checkpoints and contingency exercises, specialty most frequency threat like no authorized person, social protest, alone and forgotten items, person without badge.

Yes; Biennial [Economy] all of Government threat scenarios.

Yes, by conducting simulation exercises in accordance with the Airport Security Plan (ASP) for access control, patrolling and guarding.

Yes, the [Economy CAA] conducted recurrent trainings and practical exercises to personnel manning the security equipment. Also, security personnel assigned at control points were undergone security awareness seminar once in a year to mitigate risk within their area of responsibility.

Yes, by conducting simulation exercises on standard operating procedures (SOPs) for access control, patrolling and guarding.

Please provide any other information you would like the Event Organizers to know.

Recently we are revising regulations and domestic programs according to the latest amendment of Annex 17, including the cyber security and the competency-based assessment for security training. However, there are few directives for us to follow. If other members could kindly share the practical experience or any related information of these new measures will be much appreciated, and therefore we could strengthen the aviation security and work together to keep the skies safe together.

Mitigation measures to deal with passengers complaints and social media exposure.

It is important to establish examples and act about random security countermeasures on attack critical facilities.

Our organization has crafted a written SOPs on every checkpoints (personnel and vehicle) to establish and adopt an effective, consistent and sustainable application of security control measures by the airport security personnel intended to safeguard civil aviation against acts of unlawful interference.

C.4 Part 2: Post-Workshop Questionnaire

Questions	Sum	Percentage of Respondents (%)
What is your overall level of satisfaction with this virtual workshop?		
Very Satisfied	7	100.0
Satisfied	0	0.0
Not Satisfied	0	0.0
Please indicate your satisfaction with the following aspects of the virtual workshop:		
Event Platform (MS Teams)		
Very Satisfied	7	100.0
Satisfied	0	0.0
Not Satisfied	0	0.0
Speakers		
Very Satisfied	7	100.0
Satisfied	0	0.0
Not Satisfied	0	0.0
Session Content		
Very Satisfied	7	100.0
Satisfied	0	0.0
Not Satisfied	0	0.0
Number of Sessions Offered		
Very Satisfied	6	85.7
Satisfied	1	14.3
Not Satisfied	0	0.0
Dates and Times of Event		
Very Satisfied	5	71.4
Satisfied	2	28.6
Not Satisfied	0	0.0

Please provide any additional comments you might have on the above aspects of the virtual workshop

Speakers: for future engagement, I highly recommend that speakers have own computer as well. This helps simulating the workshop "feel" and person to person connection.

Dates and Times of Event: in my case, the times of the event were very late, in [Economy] the sessions ended almost at midnight.

Session Content: very useful that it covers from the concept to how to implement in the field.

Event Platform (MS Teams): is an excellent tool for a videoconference and was steady the whole time.
Speakers: rxcellent information and explanation about the topic.
Session Content: dynamic and interesting.
Number of Sessions Offered: enough.
Dates and Times of Event: excellent time for [a specific region].

Event Platform (MS Teams): very stable, with no interruptions.
Speakers: very professional and experienced persons.
Session Content: it was very complete and useful.
Number of Sessions Offered: probably one more day.
Dates and Times of Event: no comments.

Event Platform (MS Teams): happy given the circumstances that the workshop was able to be completed on Teams. Face to face is clearly better, however virtual is a good alternative.
Speakers: very well presented by experts in the practice of random and unpredictable. Clearly able to explain the application of measures in a random and unpredictable manner.
Session Content: very good and practical in the considerations, assessment and implementation of measures to achieve the outcome required. While the decision and implementation of counter measures was well explained, the assessment of how to determine the amount of randomness and unpredictability to any measure could have been discussed further. To explain, determining the suitable counter measure is well developed, I thought that possibly the decision of whether its to be random or not and how often to apply that could have been explored in more depth.
Number of Sessions Offered: excellent amount for what was covered, I would have enjoyed more if it was available.
Dates and Times of Event: well spaced to maintain the momentum of the course.

Speakers: the resource persons who gave their valuable time to the virtual training program are very knowledgeable and experienced in their own respective fields of specialization.

How would you rate the usefulness of the information and material covered in:

Session 1: "Part 1 Review: Random and Unpredictable Security Countermeasure Concepts"

Very Useful	6	85.7
Useful	1	14.3
Somewhat Useful	0	0.0
Not Useful	0	0.0

Session 2: "Analyzing Vulnerability to Reduce Risk"

Very Useful	6	85.7
Useful	1	14.3
Somewhat Useful	0	0.0
Not Useful	0	0.0

Session 3: "Developing Risk Mitigation Tools"

Very Useful	5	71.4
Useful	2	28.6
Somewhat Useful	0	0.0
Not Useful	0	0.0

Session 4: "Practical Exercise for the Random and Unpredictable Security Countermeasures Implementation Plan"

Very Useful	6	85.7
Useful	1	14.3
Somewhat Useful	1	9.0
Not Useful	0	0.0

Session 5: "Exercise Review: 'Hot Wash'"

Very Useful	5	71.4
Useful	1	14.3
Somewhat Useful	0	0.0
Not Useful	0	0.0

If possible, please provide specific feedback:

Session 3: "Developing Risk Mitigation Tools" – was a good session and very important. I would just say that the process used in the other sessions was more effective in walking the participants through process.

Specially I found very interesting Session 2 because we need to make a very good analysis of the risk, to implement the best procedures according the risk.

I enjoyed the lessons from each topic and found them all very useful.

The training program enhances the knowledge and skills of this officer in the proper implementation of random and unpredictable security countermeasures.

Considering your level of knowledge and understanding of Random and Unpredictable Aviation Security Countermeasure Development and Implementation before you attended this virtual workshop, how would you rate your level of knowledge and understanding of these principles now that you have completed the virtual workshop?

After completing the workshop, my understanding and knowledge:

Was significantly enhanced	7	100.0
Was somewhat enhanced	0	0.0
Remained the same	0	0.0

If possible, please provide specific feedback:

The knowledge was enhanced thanks to the professionalism of participants and speakers, their opinions and experience.

Particularly the implementation and plan.

This officer is currently the [tactical operation center] of the [Economy Airport Authority] airport police department wherein this workshop is necessary and relevant to his duties and functions because it enables him to introduce and design random and unpredictable elements to strengthen security screening. Likewise to support the overall Security Culture and to strengthen [Economy Airport Authority] security countermeasures.

How will you apply what you learned during this virtual session? Please describe:

As a locally engaged employee based here in [Economy], I look forward to including this in the topics that we include in our engagements and collaborative activities. If possible, hoping to request material also to include parts in the Managing Insider Threat Workshop we deliver in the [Economy].

With the practical exercise I got some ideas to improve our planning to get better results.

I will use the methodology to consider how we implement each measure.

Every day in airport operation considering the security risk considerations because was a wide explanation about this important part of prevention.

Coordinating procedures with other stakeholders in the implementation of security measures.

In the non-passenger screening regime. Also using the assessment and root cause for all security measures to ensure they are properly addressing the vulnerability.

By cascading to my subordinates and superior officers of what I have learned and to apply the same within our area of responsibility.

Which of the following statements best describes your overall evaluation of the virtual workshop?		
The workshop introduced useful concepts and helped me to think critically about and explore new options for random and unpredictable aviation security countermeasure development and implementation.	7	100.0
The workshop helped me think about random and unpredictable security concepts, but did not introduce any new development or implementation options that I have not previously considered.	0	0.0
The workshop was not helpful.	0	0.0

If possible, please provide specific feedback:

The chance of listening, many different ways to attend different situations and experiences or share methods to enhance procedures.

The virtual training program made this officer more aware of the importance of random and unpredictable security countermeasure.

Was there enough time devoted to questions/discussions during each session of the virtual workshop?		
Yes	7	100.0
No	0	0.0

If no, please describe:

[Answered yest] Because, some topics required more time to discuss and example to the industry apply.

Are there best practices, lessons learned, or additional resources on the development and/or implementation of random and unpredictable aviation security countermeasures that you would like to share with participants? If yes, please describe and provide resource materials or links, if applicable.

I think the threat is always evolving so we need to be increasingly more unpredictable to apply the AVSEC countermeasure. In this case is very important to get more accurate intelligence about the threats.

Yes. Just the way in which the amount of randomness, (how often) to apply to a countermeasure. If there is a way of determining the best, most effective amount of application of a countermeasure ina random manner to achieve the outcome. For example, one measure may be performed to have an intervention rate of 50% and another 80%, other than the criticality level I wonder if there is a way of determining the correct rate or not.

Please provide any other information you would like the Event Organizers to know, including any suggestions on how project could be improved.

Consider getting people to turn on their videos, in our experience, it promotes more interaction amongst the participants. We hope that as we return to normal and travelling, APEC would also continue to have virtual workshops. This provides opportunities to participate even if distance, funding, commitments prohibits travel. Kudos to TSA for effectively capturing the feedback and comments in the chatbox!

The project is good and I consider that cover all that we need. Thanks.

Everything was very well, perhaps little more time perhaps 1 day more, because there are many several different point of views or experiences, and all of this can be very useful information.

Duration of the virtual training program should be extended so that adequate time is given in random and unpredictable security countermeasures exercises.

C.5 Follow-Up Survey

Questions

Which materials and resources on random and unpredictability, either promoted through this project or through other efforts, such as the International Civil Aviation Organization (ICAO), have been valuable to your efforts? Please provide specific resource link/attachments and explain how they have been useful.

We have considered the use of K9 team for patrolling in SRA, at check point queue and aircraft. Also, we have visible patrols in the SRA. We do physical search (pat-down) at security check point for passengers and employees, also we control airport ID (credentials) and travel documents. Currently we are exploring new technology to complement the random and unpredictable security countermeasures.

We do not have too many resources or materials on random and unpredictability, except Annex 17.

We at airport must display videos on screen and FID´s [dynamic display communications] for all employment and passengers, about reporting any things against security measures.

It is required in NCASP and also established in Security Programme of each operator. The implementation of such requirements are ensured by means of QC activities conducted by internal QC and by CAA.

In thinking about the key themes and principles explored throughout the project, what activities are you currently doing or have started to explore since the start of the project to develop and implement random and unpredictable security countermeasures in your Economy or organization? Please provide specific example(s).

Currently we are applying random and unpredictable security countermeasures at passengers' security check point, baggage area and vehicle access point. Now we are exploring random and unpredictable security countermeasures on cargo warehouse.

We screen passenger by ETD randomly, and set the walk though mental detector to alarm randomly.

First is a training, mainly to security force that is the main personel staff witness to any action, second we continue with security and vulnerability test in each security check point.

When a vehicle is subjected to security screening at least 2 of the vehicle areas must be searched in accordance with the principle of randomness and unpredictability: 1) Front door pockets, sun visors, and glove compartment; 2) Trunk / Boot / Baggage / Cargo area; 3) Wheel arches; 4) The underside; 5) Other areas not listed.

Explored by the conduct of QC activities such as the number and type of hold baggage random check by using ETD. Random and unpredictable security countermeaures are done by risk assessment by Subcommittee on risk asessment under the NCASP. The Committee wil assess the risk and assign threat, then determine what measures are needed to conduct at each airport. Not all airports are at the same threat level.

Has your Economy or organization incorporated risk informed and evidence-based decision making into the regulatory and operational decision making process?

Yes	5	100.0
No	0	0.0

Please explain why or why not with specifics:

Even though the terrorism threat is low in [Economy], we have experienced an increase of organized crime and drug trafficking, this creates a new risk to take account. The [Economy] CAA frecuently receives risk report from other government agencies, in according with this we can modify the technical and operational regulations, and without prejudice to the foregoing, the [Economy CAA] carry out risk assessment to improve the regulaions.

We have implemented SeMS, airport authority and air carriers need to conduct airport risk assessment regularly and if they get any risk information, investigation, evidence-based decision and informing the related stakeholdesr are required.

Because we manage the information and the ratios, try to assess any threat and measure versus probability and the vulnerability in each security inspection.

Yes, this will assist the organization's decision-makers/heads make rational decisions if faced with imperfect information. Likewise, it can identify the most promising course of action, while recognizing risks of uncertainties.

It is specified by the intelligence based information from Risk Assessment Sub Committee and, also, based on intelligence office working at the airport. The [Economy] Sub-Committee includes many national level offices to include Intelligence, which meet regularly to conduct risk assessments. The results of which determine what countermeasures will be utilized to include the frequency at the operational and regulatory level. When [Economy CAA] changes the requirements for unannounced QC audits/inspections, this will allow follow-up to ensure measures are carried out effectively.

Do your efforts include external stakeholders (i.e., stakeholders outside your organization) who have supported and collaboratively worked on those efforts?

Yes	5	100.0
No	0	0.0

Please describe with specifics:

We receive support from other stakeholder like airlines, national police, intelligence agency.

All the entities in the airport have the security responsibility and will support the SeMS.

The airlines, commercial providers, suppliers and contractors, local authorities.

Yes, various airlines companies, groundhandling service companies and others submits their personnel to background investigation to ensure there is no record before they could be given access pass.

[Economy] CAA works collaboratively with international various organizations. At the local level, they all come together to assess [Economy's] Threat and Risk. This is always a joint effort and requires frequent scheduled meetings to discuss new intelligence reporting or after an incident. [Economy CAA] works with the different operators and meets with them regularly or inspects them based on the work plan for the year. They also conduct ad hoc QC not prescribed in the work plan to allow for random and unpredictable QC oversight.

Have you identified challenges to developing or implementing random and unpredictable security countermeasures, and how have you addressed those challenges? Please provide specific examples, as well as resources that have been beneficial to overcoming the challenges.

We are focusing on cargo warehouse access control to develop random and unpredictable security countermeasures.

No.

Yes of course there are challenges specific in the culture of the people and other thing that we have trouble with to promote the security rules. Many people know but do not adhere to the rules and we have many distractors that reduce effective results.

The measures sometimes cause disomfort/inconvenience to passengers or even personnel since this extends screening process/time of an individual. Personnel/public information of awareness of the severity measures addresses the challenge.

Precise relevant information from intelligence. Resource: Create more channel to contact with intelligence office as well as build trust of the team.

The understanding of staff to comply with their own security programmes. Resource: more QC, covert test and inspection without prior notice, to ensure the understanding and the right implementation.

What benefits have you experienced within your economy or organization when developing or implementing random and unpredictable security countermeasures? Please provide specific examples.

Our level of threat is low, but most of the time, when the security officers apply this random and unpredictable security countermeasures, they have found drugs or other type of smuggling.

Until now, no.

Of course we get some benefits specialty to develop a Security Culture to the staff today more people send reports and provide information to improve security measures.

More effective in terms of passenger screening. The implementation of "See Something, Say Something" makes the employees and passengers feel safe. More QC activites are a reminder to apply security measures effectively and will keep staff alert.

How does your economy's regulatory authority take into account randomness and unpredictability during the regulatroy audit process? Please be specific.

This is stablished in our NCASP, in this case the [Economy] CAA´s security officers are subjet to audit process, because they are in charge to apply the random and unpredictable security countermeasures.

The regulatory authority will randomly conduct the test or inspection.

The CAA in [Economy] put importance on this topic during the audit process, through conducting several random security tests to demonstrate that the airport security measures (staff and equipment) are working at a high level to protect aviation.

Inspect according to their security programme and threat level. Currently, [Economy CAA] does not allow for unannounced inspections and have to inform regulated entities. This plans to change in the New Year to allow for unannounced audits. [Economy CAA] does conduct the QC/compliance work plan, which is drafted every year, with ad hoc QC not prescribed in the work plan to allow for random and unpredictable QC oversight.

What techniques, processes, or actions does your Economy or organization employ to ensure security countermeasures are truly random and unpredictable? Please provide specific examples.

In addition to using technology to screen passengers and airport employees, our security officers do pat down as one of the many security counter measures. Also, we check credential and vehicle control in restricted security zones, we employ K9 team at some security checkpoint as part of random measures, and platform patrol.

Observation, and check the setting of screening machines.

First a rigorous surveillance in all airport areas, inspection to fences, gates, doors, etc. Use remote surveillance through CCTV, inspection to suspicious employments and passagers to security checkpoints.

The countermeasures will be done on no specific time. The screening method applied includes handheld metal detector, K9 Bomb detection screen on baggage and other screening technology with no vet of particular combination.

Covert test and inspection both with no notice and with prior notice. The [Economy] Sub-Committee is a major player when it comes to countermeasures, as they are always looking at the current threat, incidents, and security measures to ensure countermeasures are effective.

Is there anything else you would like the Project Organizer to consider for the project outcomes, or any other information you would like the Project Organizer to know? If yes, please describe.

I would like to learn to develop better risk analysis and manage the countermeasure against civil aviation to improve the protection and reduce or optimize the cost.

[Economy CAA] is interested in learning how other economies are applying random and unpredictable activities for passenger and hold baggage screening. We conduct additional screening based on the threat level and number of passenger.

C.6 Targeted Interview

Please tell us about your Economy or organization's current random and unpredictable security countermeasure policies and programs.

[My Economy] has recently updated its NCASP in 2020, which requires randomness and unpredictability to be incorporated into several programs. During the passenger and carry-on baggage screening, the AVSEC operator is required to conduct random and unpredictable screening at [a specific percentage] using the ETD. The airport authority is required to conduct covert testing twice a year and report the results to the regulator, which uses them to plan their regulatory work. While these tests are not random per se, they are considered unpredictable to the AVSEC operators being tested. We are also looking into QC activities and how they can be conducted on a random and unpredictable basis. Additionally, at the airport-level, a risk assessment is conducted to make the work plan and guide the activities described.

To highlight one aspect of [my Economy's] current random and unpredictable AVSEC countermeasure program, we use these countermeasures for non-passenger screening. Due to the current threat and risk environment in [Economy], we have not put much more security controls than what is required of the wider aerodrome; however, the international environment is changing so additional measures will need to be put in place. Until then, a risk assessment has determined that a percentage of non-passengers entering the SRA will be subject to screening of some sort. This is part of our random and unpredictable AVSEC regime. From the security operator's perspective, they are still coming into maturity with the random and unpredictable AVSEC regime as they are used to the random-continuous style, which is different. Random-continuous can be predictable because an observer can see when a screener is busy with a different passenger and choose that moment to move forward because they know they will not be randomly selected. Whereas the unpredictable aspect in random and unpredictable, as opposed to random-continuous, enhances the deterrence by not knowing when and what countermeasure will happen. People naturally tend towards patterns (e.g., drinking coffee at the same time every day, finishing work at the same time, cleaning the house the same way, etc.), but implementing randomness and unpredictability will put people off balance.

[Ministry for Transport in Economy] has a declaration for airport operators to establish a random and unpredictable AVSEC program, which is a requirement in the NCASP. We allow operators to have the flexibility for its random and unpredictable AVSEC programs, including who, when, and how to implement. Therefore operators may not have documented programs because the government is not specific in how they must execute the requirement.

What challenges does your Economy or organization face when developing and implementing random and unpredictable policies and programs? (e.g., aviation security legal authorities and/or policies that needed to be changed before implementation could occur)

A lot of our challenges comes down to specific ways policy are written; for example, perimeter patrol must be 'irregular.' This seems to lend itself to random and unpredictable techniques but irregularities do not necessarily mean they are random or unpredictable. There is a certain amount of regularity in its irregularity. However, changing the policy is cumbersome and not as easily changed as perhaps some other economies.

Some challenges we are facing include operators wanting more specifications for what they should do, believing the NCASP requirements are too vague. Money and personnel resources are also not enough to adequately carry out the mission.

[My Economy] does not have good technical instructions for doing random and unpredictable activities, both for the regulator and the airport authorities. The APEC presentation from a few months ago provided materials that will help them do this. We would appreciate more assistance in this regard for both the regulator and the airport operators.

How has your Economy or organization overcome those challenges? What has been helpful in overcoming those challenges?

In order to overcome the challenges that arise because of the way policy is written, [my Economy] has adopted a rule making processes similar to the U.S. Federal Aviation Administration (FAA), allowing us to use the path of least resistance to change notices to meet compliance with demonstrative requirements. For safety, a lot of the regulatory changes can go into Advisory Material documents that are often found online. For security, Advisory Circulars cannot be published publically due to the often sensitive information included, therefore it is vital to consult with our aviation stakeholders and work alongside them collaboratively, instead of just giving them a document. Part of the journey to overcoming challenges is getting people alongside. We do this by showing people the need, leading them to the solution (how to fix the need), and closing the deal (getting their buy-in and compliance). We prefer to regulate 'with people' (voluntary compliance) and not 'to people.' Due to the size of [my smaller Economy], we were able to create an executive board of organizations, representing airlines or air cargo agents and airports, that regularly meet to ensure consistent messaging on changing requirements. Because of these trusted relationships, we are able to maintain confidence and reputation with the aviation stakeholders.

Random and unpredictable AVSEC programs are by its nature supposed to be flexible, so the government has not attempted to overcome the challenge because if it gets too specific, the flexibility will be taken away. For limited money and personnel resources, [my organization] raises the issue whenever they can so senior leaders at operators get more interest. When their senior leaders have more interest, they can get more resources. Frequently we include this as a talking point for high level meetings to influence the Security Culture.

In regards to overcoming our challenges as described, we have required the activities to be done, but we are realizing they may not be truly random and unpredictable. For this, we are still seeking a solution.

Please tell us how your Economy or organization analyzes vulnerabilities and risk within your aviation network. How is this vulnerabilities and risk analysis data used to inform aviation security decision making? (If it does not inform decision-making, why not? What are the challenges?)

We use covert testing programs to analyze the tendencies of vulnerabilities and risk. These programs have interagency collaboration with national intelligence services that develop threat items to detect vulnerabilities, such as IEDs, based on their intel analysis. The process typically flows as follows: conduct covert testing; collect data; analyze outcomes; report to senior leaders, including the minister; develop countermeasures; and include the updated program in next year's AVSEC Strategy.

The airport authorities are required to conduct the risk assessments, which can be conducted jointly between the airport operator and the regulator, if the airport desires. We have made available technical instruction for how to conduct these risk assessments. Additionally, carriers are likewise required to conduct a risk assessment. [Economy] carriers are required to have a risk context statement.

Information from the [Economy] intel community feeds into the Threat Context Statement, which includes threat considerations to aviation, such as likely actor and likely path of attack. Two skilled employees combine this information with oversight results (i.e., monitoring and testing, certification) to analyze the aviation environment's risk. In [my Economy], aviation employees are required to report when they see something that is not right. With these reports, [my Economy] can put together a picture of what is happening locally, including possibilities of attack, dry runs, active surveillance, and the like. Patterns and potential trends then start to emerge. One known trend is that overseas occurrences will typically happen in [Economy] five years later. Keeping this in mind, we actively seek information on events that may not even be related to transportation, but we can still look for trends, understand mitigation measures that were put in place for those events, then apply it to the aviation context. Global examples that we have looked at include lone gunmen shootings in public spaces, and vehicle ramming on crowded pedestrian streets. We have learned over time that just because there is a lack of evidence that a threat might happen, it does not mean it will never happen.

Does your Economy or organization conduct root cause analysis when evaluating vulnerabilities and developing appropriate mitigation activities and countermeasures? (If it does not inform countermeasure development, why not? What are the challenges?)

We have no dedicated analysis staff to conduct root cause analysis, so our use of root cause analysis is still developing. [Economy Ministry for Transport] is not consistent with collecting data, and root cause analysis needs accumulated data to be effective.

Yes, we do apply root cause analysis when evaluating vulnerabilities, which we then use to develop the appropriate mitigation activities. The AVSEC services have applied root cause analysis to non-passenger screening often when identifying vulnerabilities and then implementing measures to mitigate those vulnerabilities. Root cause analysis has formed a central part of planning and implementing of enhanced non-passenger screening. We also often find linkages between the threat from criminal activity and applying those mitigation measures to terrorism-based threats – they have the same attack path and insiders could help them, the only difference is in motivation. We often collaborate with customs, border, and police to conduct valuable AVSEC exercises. Through these exercises (and surveys) we are able to drill down to the root cause for the cohesive airport, rather than one person at one airport.

Perhaps this is something [Economy] can still work on as it is not well understood.

How does your Economy or organization test or measure the appropriateness and effectiveness (or mitigation performance level) of newly developed and implemented countermeasures? And how is this information used to inform adjustments, if any, to your Economy or organization's policies and programs? (If they do not measure the performance of the countermeasures, why not? What are the challenges?)

Since 2009, inspectors and the airport operator conduct inspections and other regulatory activities. Inspectors are broken into regions with a total of 150 AVSEC inspectors. Previously the regulatory activities were handled just by a handful of inspectors (15). Now they have robust personnel and use those inspectors to determine effectiveness.

We test by oversight, auditing and monitoring, and reporting if you are meeting your targets. Audits can be targeted to look at a central part of one aspect of operations, as well as to establish a baseline for that operation. This information is put together so trends can be identified. Some things we look at include: how effective things are operating normally, how effective is the countermeasure in mitigating the threat, has there been a change in the situation or operation. If there is a change or programs are not operating efficiently, then we would apply root cause analysis to identify the deficiency. Since establishing the baseline, we have conducted overt audits and checks, and covert testing. However, these evaluations only give you a snapshot because what you caught is what you know, but it is difficult to measure and know what you do not catch. There is an element of guesswork because you are only operating on the information that you have on hand.

For [my Economy], there is no testing period for new countermeasures. Testing is conducted with test items of the intended threat on the screeners at the checkpoint to see if they can detect it or not. If they do not, it is a good test item and shows the vulnerability and the countermeasures are adjusted accordingly. It is a set government requirement for the amount of testing that must be conducted. Airport operators also conduct their own covert tests on a random and unpredictable basis, using the same items the government inspectors use. They always include any new items to be tested in addition to the existing regular test items.

Project Outcome #2 aims to encourage the use of risk-based decision making, through increased awareness and knowledge of the threat. How have the project principles enhanced risk-informed and evidence-based decision making processes in your Economy or organization? (If not, why not? What are the challenges?)

The project principles have fully enhanced my risk-informed and evidence-based decision making process. This project under APEC has opened my mind to different learnings, things, and perspectives from the other APEC Member Economy participants, as well as the Project Organizer and speakers. I took lots of notes, especially for the sessions on analyzing vulnerability, reducing risk, and on root cause analysis, and I have shared what I learned with others throughout the project, which they have found useful. I fully believe that collaborating with others provide different perspectives and breadth of knowledge that would not come about if one went at it alone. When I started talking with a colleague about this course, he came up with an AVSEC threat scenario that no one in the office had thought about before so we added it to our attack path information.

As a participant in the project, I have not had the opportunity to influence [my organization's] decision making process yet. I have provided the project information to [my organization] but no changes have been made yet.

The project has been helpful. We have learned many little things about how to do random and unpredictable programs better. We hope there is still more as it is still new to [Economy].

Since the beginning of the project in October 2020, has your Economy or organization further developed and/or implemented random and unpredictable countermeasures within the aviation environment? Please describe: (If not, why not? What are the challenges?)

We have not yet been able to start these activities, other than garnering support to create the technical instruction (similar to an SOP). The [Economy] CAA wants to include this.

As of yet, we have not developed new countermeasures since my participation in this project. However, [my Economy] really likes the practical examples shared during the project, particularly the use of an auxiliary screening team that consisted of K9 teams, Behavior Detection, TSSEs, and other AVSEC personnel. This is something that we are considering implementing in [Economy] as an additional layer. We were previously planning on implementing K9 teams for screening, but had not realized K9 teams could also be effective for random and unpredictable programs.

Certainly in regards to our non-passenger screening regime, we have further developed and implemented countermeasures that have been partly influenced by this project. We have enhanced our non-passenger screening and continue to think about how to do it different ways and with different countermeasures to adapt to the current threat. The project principles have been particularly valuable when taking a pressurized look at the screening measures themselves, such as adopting the prohibited items list for non-passengers. I have been able to focus on what we are doing and why we are doing it, to provide reasoning why efforts should be focused on explosive devices and ammunition, as opposed to blunt objects.

How have random and unpredictable programs or countermeasures helped your Economy or organization more efficiently allocate resources during the pandemic, given the impact of the pandemic on aviation operations and availability of resources? Please describe:

Use of Behavior Detection is thing we have expanded from beyond the security checkpoint to the entire airport without major expenditure. These personnel do not require contact with the passengers and, when in uniform, they add an additional layer of countermeasures and assist with deterrence.

This has not yet been explored in [Economy].

[My Economy] is in the recovery stage with the borders finally open, but we are still experiencing challenges such as labor shortages at the airports. Some people may be a bit hesitant to return to the place that let so many go during the pandemic. For the AVSEC provider, there is a concern that perhaps hiring and pre-employment practices are not as rigorous as before, potentially creating a new vulnerability. As some people do return, they have to get used to adjustments that were made during the pandemic, such as closing some direct access doors to conserve and focus existing resources. In this regard, implementing random and unpredictable countermeasures have assisted with resource allocation during the pandemic because we had to learn to do more with less in order to keep a high level of security. Because there were less flights but security programs were still on-going, the slower operations provided us the opportunity to make adjustments and move towards where we really wanted to see the change. Continuing to conduct risk and vulnerability assessments also assisted in this regard.

How useful have you found the random and unpredictable materials and resources promoted through this project in your efforts to develop random and unpredictable policies and programs in your Economy or organization? What other materials or resources have you used or consulted in the process? Please describe:

The project and its resources have been very useful, but hands on support, such as a technical advisor, to develop the technical instructions would be helpful.

I often think "you do not know what you do not know" so the information from this project has been valuable. We have applied a number of things from the workshop, including ones we have asked [the Economy's] AVSEC service provider to apply, such as where and how to apply AVSEC countermeasures in a random and unpredictable way (e.g., during non-passenger screening. The timing of this project could not have been more perfect, as the pandemic stirred an interest in and the available timing for [my Economy] to enhance its non-passenger screening program. Learning from the project while undertaking this change effort was excellent.

I have shared the materials with the person who is in charge of developing the programs and policies, and they were a good source for that person. The specific conversations with the subject matter experts were also very useful. During that session, I took lots of notes and shared the summary with others in [my organization] to highlight relevant examples and annotate what [my Economy] would need to do to capitalize on these ideas. These notes have been turned into an outline and guideline for [my organization]. We also always refer to ICAO for updated policy information. These can be general so we often also consult TSA materials because they include more real world examples.

Please share your thoughts on the project overall. What have you found most useful or interesting?

On the project overall, I found the interaction with other economies very useful. It was also helpful that the session moderators provided a useful, compactable summary of the speakers' presentations and the participants' comments. I found interesting (and believe) that the benefits of unpredictability should exceed its costs. Implementing a random and unpredictable AVSEC program is a difficult path, but it can maximize one's resources because it is targeted with rigor and conscious thought. I also found it useful to hear collaborative and consistent messaging between aviation agencies and other organizations, instead of messages only coming from the AVSEC Authority, have helped to obtain buy-in for the measures.

For the logistics, it was hard virtually meeting on Teams. However, it was done well with active participants, and I learned how to manage and operate similar meetings. Overall, it was very informative because TSA invited the right subject matter experts from different regions and economies to talk about the things you can 'see.'

The entire project focused on so many things we needed to learn.

Anything else you would like to share or for the Project Overseer to know?

This was a good lesson and I learned a lot from the seminar. I wish we had another opportunity for this project to meet in-person and talk about these topics, group activities, conduct interactive case studies, and capstone activities.

[My Economy] was fortunate to participate in a virtual visit from the TSA ATLAS team outside of this project. I found it very beneficial to understanding the program on a deeper level with the one-on-one discussion. Perhaps this could be an element of the project to explore for future iterations, if any. But overall, this project was fantastic and I found great value in the learnings. I would love to be involved in more, and particularly if the project is conducted in other regions to hear their experiences and best practices.

The virtual environment was difficult between the time zone gaps, language gaps, etc. If TSA is able to do a follow-up workshop in-person, that would be better and we would get more out of it. It would be great if this were in-person, in the region. If an airport operator team could also attend, this would be helpful as the [Economy] CAA does not really have the experience to train the airport operator on this issue just yet.

Appendix D – Outreach Campaign Briefer

Building Randomness and Unpredictability into Aviation Security Countermeasure Development and Implementation

(APEC Project No. TPT 02 2020A)

Fast Facts from Part 1: Virtual Workshop and Mini Webinar

- Part 1 was held on 24 and 26 February 2021 and the Mini Webinar was held on 4 August 2021
- 75 total attendees, including 18 Experts
- Attendees consisted of 13 APEC Member Economies and 5 non-member participants and Industry
- 31.1% of female participants

Analysis of the Pre-Workshop Questionnaire

- 62.2% of respondents indicated their Economy employs Random and Unpredictable security measures within the aviation domain, including:
  - Random screening of non-passengers, to include identification verification
  - Implementation of enhanced security measures during passenger and accessible property screening
  - Overt and covert testing
  - Additional screening measures applied inside the SRA and beyond the main checkpoint, such as canine and explosives trace detection (ETD) screening at gates
- 70.3% of respondents indicated legal authorities and/or policies govern the implementation of Random and Unpredictable measures in their Economy, including:
  - International requirements and guidelines (e.g., ICAO)
  - Local legislation that

Overview

On 24 and 26 February 2021, the United States held Part 1: Virtual Workshop of its *Building Randomness and Unpredictability into Aviation Security Countermeasure Development and Implementation* Project (TPT 02 2020A) under the auspices of the Asia Pacific Economic Cooperation (APEC). This was supplemented by a Mini Webinar held on 4 August 2021. From the discussions, the following key themes and best practices emerged.

Random and Unpredictable Countermeasures as an Addition to Baseline Security Measures

To determine appropriate countermeasures to implement within an airport, the appropriate authority, in collaboration with the airport operator and stakeholders, should conduct a Risk Assessment. The results should inform where resources should be applied and the specific countermeasures to develop and implement in order to more effectively mitigate the assessed risk. This is above, or in addition to, what the baseline security measures already provide. Mr. Lockie of ICAO states there is no one-size-fits-all approach; therefore, Random and Unpredictable elements should be informed by the Risk Assessment and tailored to strengthen existing security measures at the airport. For example, an airport may implement 100% screening of non-passengers; however, Random and Unpredictable elements – such as using explosives detection technology in addition to a walk-thru metal detector or setting up a secondary screening point beyond the entrance to the security restricted area (SRA) or main checkpoint – could be used to strengthen the overall security posture and provide an added layer of protection and deterrence against Insiders who may otherwise attempt to circumvent the usual, well-known procedures. Additional examples of the application of Random and Unpredictable countermeasures outside of traditional checkpoint screening locations, as offered by Mr. McKinley of US TSA, include unpredictable identification checks, random secondary screening checks, and use of explosives detection dogs throughout the SRA and other airport sterile areas. As highlighted by Ms. Herbelles of ACI World, the benefit of Random and Unpredictable security is that it is adjustable, customizable, and scale-able to fit your operating environment and risk context; it is best applied as an "invisible" layer of security, and allows the AVSEC operator to be innovative in the application of its various methods, to include timing, location, technology and/or procedure.

Scheduling Random and Unpredictable Security Countermeasures

While scheduling countermeasures that are supposed to be Random and Unpredictable may sound counterintuitive, it helps to ensure implementation is truly random and unpredictable for both those carrying out the measures and for staff who may be subjected to them. The results of the Risk Assessment should drive resource prioritization and scheduling for a "right place, right time" mindset. Ms. Gee of US TSA offered the example of perimeter patrols and how scheduling them at different times and varying the paths taken will keep adversaries and Insiders unaware of exactly how, when and where such patrols will be conducted. Ms. Hazel of US TSA uses a randomizer tool to create schedules for the TSA Advanced Threat Local Allocation Strategy (ATLAS) team. This tool ensures no patterns are inadvertently created

![APEC Asia-Pacific Economic Cooperation logo]

Building Randomness and Unpredictability into Aviation Security Countermeasure Development and Implementation
(APEC Project No. TPT 02 2020A)

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Analysis (cont.)

authorizes the CAA to develop and implement security regulations and measures

- o National Civil Aviation Security Program (NCASP), Airport Security Program (ASP), and air carrier security programs
- o Regulatory framework to monitor and conduct quality control activities over security measure implementation
- o Standard Operating Procedures (SOPs) and training of security personnel
- o Intelligence centers and their policies influence risk-based implementation of security measures

Expert Speakers

- Ross Lockie, Regional Security and Facilitation Officer, ICAO
- Alyssa Gee, Project Manager, US Transportation Security Administration (TSA)
- David McKinley, Program Analyst, US TSA
- Carrie Hazel, Deputy Assistant Federal Security Director, US TSA
- Michael Lynch, Senior Aviation Security Policy Advisor, Transport Canada
- Nathalie Herbelles, Senior Director, Security and Facilitation, Airports Council International (ACI) World

Scheduling Random and Unpredictable Security Countermeasures (cont.)

and that countermeasures are spread across different airport locations and are not concentrated at one area. The ATLAS daily schedules are only accessible by supervisors and generated only a few hours in advance of a shift, thus controlling/restricting access to the schedules to the operators with a "need to know." Additionally, threat information should be incorporated into the scheduling of countermeasures, for example, through increased announcements to the public and airport employees, as well as threat-targeted activities that provide a visible deterrence.

Leadership Promotion of Security Culture for Effective Security Countermeasure Implementation

Security Culture plays an integral role in effective security countermeasure implementation, particularly when reinforced through strong leadership messaging, engagement and action. Mr. Lockie promoted Security Culture resources available through ICAO (see link included in Additional Resources) and stressed the importance of leadership actions embodying good Security Culture. For example, Prime Minister-level leadership who undergo security screening, to include random and unpredictable screening countermeasures, visibly demonstrates to the public and security personnel the importance of security and its application at all levels.

Case Study: ATLAS at Philadelphia International Airport (PHL), United States

TSA develops and implements Random and Unpredictable security countermeasures for its more than 440 national airports, many of which are actioned through its ATLAS program. An ATLAS Team may consist of Transportation Security Inspectors (TSIs), Transportation Security Specialists (TSSs) with an explosives detection dog or behavior detection focus, Transportation Security Officers (TSOs), TSA management, and airport stakeholders and local law enforcement. In one example of the collaborative nature of ATLAS activities, Ms. Hazel described how the ATLAS Team works with the airport authority to temporarily close down direct access points to the SRA in order to funnel airport employees towards ATLAS activities, in order to conduct a specific countermeasure such as bag checks or ETD screening. Local law enforcement partners are often onsite to observe if any airport employee attempts to avoid the ATLAS activity, thereby flagging that employee for additional observation and possible action.

TSA Expert Speakers from PHL:

- Osborne Shepherd, Supervisory TSI
- Scott Vance, Supervisory TSI
- Jim Byrne, Supervisory TSI

- Nathan Benson, Supervisory TSS
- Alex Broughton, TSS
- Troy Small, Supervisory TSO
- Joseph Belger, Lead TSO

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Building Randomness and Unpredictability into Aviation Security Countermeasure Development and Implementation
(APEC Project No. TPT 02 2020A)

Next Steps for this Project

The Project Overseers received approval from the APEC Project Management Unit (PMU) to delay Part 2: In-person Workshop until **June 2022**. Details regarding specific dates, location (anticipated for the United States), logistics, and travel guidance will be forthcoming in April 2022. The Project Overseers will continue to monitor conditions to determine the feasibility of the in-person workshop.

Additional Random and Unpredictable Security Countermeasure Development and Implementation Resources

- Part 1 Workshop Materials:
  http://mddb.apec.org/Pages/search.aspx?setting=ListMeetingGroup&DateRange=2021/02/01%2C2021/02/end&Name=Workshop%20on%20Building%20Randomness%20and%20Unpredictability%20into%20Aviation%20Security%20Countermeasure%20Development%20and%20Implementation%202021&APECGroup=%22Transportation%20Working%20Group%20%28TPTWG%29%22

- Mini Webinar Materials:
  http://mddb.apec.org/Pages/search.aspx?setting=ListMeeting&DateRange=2021/08/01%2C2021/08/end&Name=Webinar%20on%20Building%20Randomness%20and%20Unpredictability%20into%20Aviation%20Security%20Countermeasure%20Development%20and%20Implementation%202021

- Part 2 Workshop Materials:
  http://mddb.apec.org/Pages/search.aspx?setting=ListMeeting&DateRange=2022/06/01%2C2022/06/end&Name=Workshop%20on%20Building%20Randomness%20and%20Unpredictability%20into%20Aviation%20Security%20Countermeasure%20Development%20and%20Implementation%202022

- ICAO Security Culture Toolkit and Resources: https://www.icao.int/Security/Security-Culture/Pages/ICAO-Resources.aspx

- ICAO Year of Security Culture: https://www.icao.int/Security/Security-Culture/Pages/YOSC-2021.aspx

- ICAO Aviation Security Manual (Doc 8973): Random and Unpredictable Screening of a Proportion of Passengers (11.5.5); Unpredictability Principles and Measures (11.9); Threat and Risk Assessment Methodology (Appendix 37)

- Australian Government: A guide to developing and implementing a Suspicious Activity Identification Program at airports: https://www.icao.int/Security/Security-Culture/Documents/

- Sydney Airport: Security Awareness Guide:
  https://assets.ctfassets.net/v228i5y5k0x4/3NJHGSdSR3gM1giDE4a3iJ/141ae650cdefce75b37b557ed40be68d/Security_Awareness_Guide_V6.pdf

- Inside Look: TSA Layers of Security: https://www.tsa.gov/blog/2017/08/01/inside-look-tsa-layers-security

- U.S. Cybersecurity and Infrastructure Security (CISA): Insider Threat Mitigation Guide:
  https://www.cisa.gov/sites/default/files/publications/Insider%20Threat%20Mitigation%20Guide_Final_508.pdf

- UK Center for Protection of National Infrastructure: Security Culture Materials: https://www.cpni.gov.uk/

Contact Us

Do you have additional best practices and/or resources to include? Please send your ideas and advice to Kalei.Hall@tsa.dhs.gov.

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